



Department of Management Services  
Purchasing Division  
241 West South Street  
Kalamazoo, MI 49007-4796  
Phone: 269.337.8020  
Fax: 269.337.8500  
[www.kalamazoo-city.org](http://www.kalamazoo-city.org)  
[purchasing@kalamazoo-city.org](mailto:purchasing@kalamazoo-city.org)

**PRE-BID MEETING: Tuesday, November 15, 2022 @ 10:00 a.m. Local Time**  
Kalamazoo Water Reclamation Plant, 1415 N. Harrison Street, Kalamazoo MI, Conference Room A

### INVITATION FOR BIDS (IFB)

The City of Kalamazoo, Michigan is soliciting sealed bids for:

**Project Name:** Biosolids Loading, Transport & Disposal  
Department of Public Services – Wastewater Division

**Bid Reference #:** 96871-016.0

**IFB ISSUE DATE:** November 1, 2022

**BID DUE/OPENING DATE:** November 30, 2022 at 3:00 p.m. Local Time  
*Facsimile Bids Will Not Be Accepted.*

### MAILING ADDRESS & INSTRUCTIONS

**Mail to:**  
Purchasing Division  
241 W. South Street  
Kalamazoo, MI 49007

**Questions about this IFB should be directed to:**  
Department Contact: **James Cornell,**  
**Wastewater Division Manager at (269) 337-8644**  
or [cornellj@kalamazoo-city.org](mailto:cornellj@kalamazoo-city.org)

*Include on the Envelope the Project Name and Bid Reference Number. All Envelopes Must Be Sealed.*

You are invited to submit a bid for this project. Specifications, terms, conditions and instructions for submitting bids are contained herein. This Invitation for Bid with all pages, documents and attachments contained herein, or subsequently added to and made a part hereof, submitted as a fully and properly executed bid shall constitute the contract between the City and the successful bidder when approved and accepted on behalf of the City by an authorized official or agent of the City. Please review the bid document as soon as possible and note the **DEADLINE FOR QUESTIONS** in the Instructions to Bidders.

All bidders shall complete and return the Bid and Award page(s) and submit all information requested herein in order for a bid to be responsive. The bid document shall be returned in its entirety, in a properly identified and sealed envelope to the Purchasing Division at the above address. **BIDS MUST BE RECEIVED BEFORE THE DUE DATE - LATE BIDS WILL NOT BE CONSIDERED.** The City reserves the right to postpone the bid opening for its own convenience.

### TABLE OF CONTENTS

SECTION		PAGE #	APPENDICES
	Statement of No Bid		Appendix A
I	Instructions to Bidders	1	Appendix B – Trace Lab Results
II	Bid & Award Pages	2 - 10	Appendix C – KWRP Plant
III	Specifications	11 - 17	Hauling SOP
IV	Insurance Requirements	18 - 19	
V	Terms & Conditions	20 - 24	

**CITY OF KALAMAZOO – INVITATION FOR BIDS**

Biosolids Loading, Transport & Disposal

Reference #: 96871-016.0

**STATEMENT OF NO BID**

**NOTE: If you DO NOT intend to bid on this commodity or service, please complete and return this form immediately.** Your response will assist us in evaluating all responses for this important project and to improve our bid solicitation process.

The Purchasing Division of the City of Kalamazoo wishes to keep its bidders list file up-to-date. If, for any reason you cannot supply the commodity/service noted in this bid solicitation, this form must be completed and returned to remain on the particular bid list for future projects of this type.

**If you do not respond to this inquiry within the time set for the bid opening date and time noted, we will assume that you can no longer supply this commodity/service, and your name will be removed from this bid list.**

- \_\_\_\_\_ Specifications too "tight", i.e. geared toward one brand or manufacturer only (explain below).
- \_\_\_\_\_ Specifications are unclear (explain below).
- \_\_\_\_\_ We are unable to meet specifications.
- \_\_\_\_\_ Insufficient time to respond to the Invitation for Bid.
- \_\_\_\_\_ Our schedule would not permit us to perform.
- \_\_\_\_\_ We are unable to meet bond requirements.
- \_\_\_\_\_ We are unable to meet insurance requirements.
- \_\_\_\_\_ We do not offer this product or service.
- \_\_\_\_\_ Remove us from your bidders list for this commodity or service.
- \_\_\_\_\_ Other (specify below).

REMARKS: \_\_\_\_\_  
\_\_\_\_\_

SIGNED: \_\_\_\_\_ NAME: \_\_\_\_\_  
(Type or Print)

TITLE: \_\_\_\_\_ DATE: \_\_\_\_\_

FIRM NAME: \_\_\_\_\_  
(if any)

PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

ADDRESS: \_\_\_\_\_  
(Street address) (City) (State) (Zip)

**SECTION I  
INSTRUCTIONS TO BIDDERS**

1. **EXAMINATION OF BID DOCUMENT**-Before submitting a bid, bidders shall carefully examine the specifications and shall fully inform themselves as to all existing conditions and limitations. The bidder shall indicate in the bid the sum to cover the cost of all items included on the bid form.
2. **PREPARATION OF BID**-The bid shall be legibly prepared in ink or typed. If a unit price or extension already entered by the bidder on the Bid and Award form is to be altered, it shall be crossed out and the new unit price or extension entered above or below and initialed by the bidder with ink. The bid shall be legally signed and the complete address of the bidder given thereon.

All bids shall be tightly sealed in an envelope plainly marked SEALED BID and identified by project name, bid opening date and time. Bids opened by mistake, due to improper identification, will be so documented and resealed. The Purchasing Division will maintain and guarantee confidentiality of the contents until the specified opening date and time. Bids submitted by Fax machine will not be accepted.

3. **EXPLANATION TO BIDDERS**-Any binding explanation desired by a bidder regarding the meaning or interpretation of the Invitation for Bid (IFB) and attachments must be requested in writing, **at least 5 business days before the bid opening** so a reply may reach all prospective bidders before the submission of bids. Any information given to a prospective bidder concerning the IFB will be furnished to all prospective bidders as an amendment or addendum to the IFB if such information would be prejudicial to uninformed bidders. Receipt of amendments or addenda by a bidder must be acknowledged in the bid by attachment, or by letter or fax received before the time set for opening of bids. Oral explanation or instructions given prior to the opening will not be binding.
4. **CASH DISCOUNTS**-Discount offered for payment of less than thirty (30) days will not be considered in evaluating bids for award. Offered discounts of less than thirty (30) days will be taken if payment is made within the discount period, even though not considered in evaluation of the bid.
5. **WITHDRAWAL OF BIDS**-Bids may be withdrawn in person by a bidder or authorized representative, provided their identity is made known and a receipt is signed for the bid, but only if the withdrawal is made prior to the exact time set for receipt of bid. No bid may be withdrawn for at least ninety (90) days after bid opening.
6. **ALTERNATE BIDS**-bidders are cautioned that any alternate bid, unless specifically requested or any changes, insertions or omissions to the terms and conditions, specifications or any other requirement of this IFB may be considered non-responsive, and at the option of the City, result in rejection of the alternate bid.
7. **LATE BIDS**-Any bid received at the office designated herein after the exact time specified for receipt will not be considered. (Note: The City reserves the right to consider bids that have been determined by the City to be received late due to mishandling by the City after receipt of the bid and no award has been made.)
8. **UNIT PRICES**-If there is a discrepancy between unit prices and their extension, unit prices shall prevail.

**SECTION II**  
**BID AND AWARD**

The undersigned having become thoroughly familiar with and understanding all the bid/contract documents incorporated herein, the project site and the local conditions affecting the work, hereby proposes to provide the loading, transportation and disposal of waste residual solids as specified herein for the following per ton unit price:

**LOADING, TRANSPORTING AND DISPOSAL OF BELT PRESS SOLIDS**

**YEAR ONE PRICING**

	<b><u>UNIT PRICE</u></b>	<b><u>QUANTITY</u></b>	<b><u>EXTENDED TOTAL</u></b>
1. Cost for transportation and disposal of solids to landfill	\$/_____/ton	80,000 tons	\$_____
2. Cost for loading the bio-solids from storage area to truck.	\$/_____/ton	80,000 tons	\$_____

**ALTERNATE BID – YEAR ONE**

Cost for moving bio-solids to in-plant staging area.	\$/_____/ton	4,000 tons	\$_____
TOTAL YEAR ONE			\$ _____

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**YEAR TWO PRICING**

	<b><u>UNIT PRICE</u></b>	<b><u>QUANTITY</u></b>	<b><u>EXTENDED TOTAL</u></b>
1. Cost for transportation and disposal of solids to landfill	\$/_____/ton	80,000 tons	\$_____
2. Cost for loading the bio-solids from storage area to truck.	\$/_____/ton	80,000 tons	\$_____

<b><u>UNIT PRICE</u></b>	<b><u>QUANTITY</u></b>	<b><u>EXTENDED TOTAL</u></b>
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**ALTERNATE BID – YEAR TWO**

Cost for moving bio-solids to in-plant staging area.	\$/_____/ton	4,000 tons	\$_____
TOTAL YEAR TWO			\$ _____

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**YEAR THREE PRICING**

	<u>UNIT PRICE</u>	<u>QUANTITY</u>	<u>EXTENDED TOTAL</u>
1. Cost for transportation and disposal of solids to landfill	\$/_____/ton	80,000 tons	\$_____
2. Cost for loading the bio-solids from storage area to truck.	\$/_____/ton	80,000 tons	\$_____

<u>UNIT PRICE</u>	<u>QUANTITY</u>	<u>EXTENDED TOTAL</u>
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**ALTERNATE BID – YEAR THREE**

Cost for moving bio-solids to in-plant staging area.	\$/_____/ton	4,000 tons	\$_____
------------------------------------------------------	--------------	------------	---------

TOTAL YEAR THREE	\$ _____
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<b>TOTAL THREE-YEAR CONTRACT</b>	\$ _____
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If awarded this Contract, the Contact Person for day-to-day scheduling, or other issues, will be:

Name (Print or Type): \_\_\_\_\_ Phone #: \_\_\_\_\_

The City shall not be responsible for costs incurred by a bidder prior to award of the contract in submission of his/her bid or any presentation or clarifications of other matters resulting from this solicitation. The City does not intend to pay for any information obtained though such information shall be utilized in determining the low responsive bid.

Bidder/Contractor has examined and carefully studied the bidding documents and attachments, and acknowledges receipt of the following addenda:

Addendum No: \_\_\_\_\_

Dated: \_\_\_\_\_

Bidder shall provide all of the information as requested herein with their bid. **Failure to do so and/or failure to provide post-bid requested information may be cause for rejecting the bid as non-responsive.**

By my signature below, I certify that the firm bidding on this contract, when making hiring decisions, does not use a past criminal conviction as a bar to or preclude a person with a criminal conviction from being considered for employment with the bidding firm unless otherwise precluded by federal or state law. I further certify that I have read and agree to be bound by the provisions of the City’s Non-Discrimination Clause found in Appendix A as updated by City Ordinance 1856.

Signed: \_\_\_\_\_ Name: \_\_\_\_\_

Title: \_\_\_\_\_

**BIDDERS' QUESTIONNAIRE**

**The following information will be used, in part, to determine bid responsiveness, therefore, failure to complete this information may result in rejection of the bid as non-responsive.**

**PLAN OF OPERATION**

1. Proposed primary disposal site: \_\_\_\_\_

Name (if any): \_\_\_\_\_

Location: \_\_\_\_\_

Owner: \_\_\_\_\_

Is this facility in compliance with all provisions of the current operating permit? Yes ( ) No ( )  
(Attach copy of operating permit)

If answer is no, please explain:  
\_\_\_\_\_

2. Proposed back-up disposal site:

Name (if any): \_\_\_\_\_

Location: \_\_\_\_\_

Owner: \_\_\_\_\_

Is this facility in compliance with all provisions of the current operating permit? Yes ( ) No ( )  
(Attach copy of operating permit)

If answer is no, please explain:  
\_\_\_\_\_

3. Proposed temporary storage site (if needed):

Location: \_\_\_\_\_

Owner: \_\_\_\_\_

4. Proposed back-up temporary storage site (if needed):

Location: \_\_\_\_\_

Owner: \_\_\_\_\_

5. Type and number of containers to be utilized:  
Type: \_\_\_\_\_  
Number available to be used for KWRP residuals: \_\_\_\_\_

6. Size of containers to be used:  
(1) \_\_\_\_\_ cu. yd. \_\_\_\_\_/L x \_\_\_\_\_/W x \_\_\_\_\_/H  
(2) \_\_\_\_\_ cu. yd. \_\_\_\_\_/L x \_\_\_\_\_/W x \_\_\_\_\_/H

7. Type and number of trucks to be used:  
Type: \_\_\_\_\_  
Number available to be used for KWRP residuals: \_\_\_\_\_

8. Provide a list of similar projects (not to exceed three) performed over the last five (5) years.

a. Project: \_\_\_\_\_  
Location: \_\_\_\_\_  
Contact: \_\_\_\_\_ Phone: \_\_\_\_\_

b. Project: \_\_\_\_\_  
Location: \_\_\_\_\_  
Contact: \_\_\_\_\_ Phone: \_\_\_\_\_

c. Project: \_\_\_\_\_  
Location: \_\_\_\_\_  
Contact: \_\_\_\_\_ Phone: \_\_\_\_\_

9. Provide a narrative statement describing the general history of the firm's operating organization.

10. Total personnel of firm: \_\_\_\_\_ Number of drivers with CDL license: \_\_\_\_\_

I hereby certify that all of the information provided is true and answered to the best of my ability.

Signed: \_\_\_\_\_ Name: \_\_\_\_\_  
Type or Print

Title: \_\_\_\_\_ Date: \_\_\_\_\_





**CITY OF KALAMAZOO  
LOCAL PREFERENCE POLICY AND CERTIFICATION**

The lowest responsive Kalamazoo County bidder whose bid is not low but falls within 2% of the lowest responsive bid is afforded the opportunity to become the successful bidder if it agrees to reduce its bid to match the lowest responsive bid. The City of Kalamazoo is the sole determiner whether a bidder is responsible, qualifies as a Kalamazoo County bidder, and if its bid is responsive to the City’s specifications, terms and conditions.

If the lowest Kalamazoo County bidder chooses not to match the lowest bid, the next lowest responsive Kalamazoo County bidder whose bid falls within 2% of the lowest bid, is given the opportunity to match the lowest responsive bid.

To qualify as a Kalamazoo County bidder, the bidder must meet both the following criteria:

1. Have a physical presence in Kalamazoo County by maintaining a permanent office, factory or other facility in Kalamazoo County with employees working in Kalamazoo County.
2. Have paid real or personal property taxes related to said business to the City of Kalamazoo, County of Kalamazoo or other municipal corporation within Kalamazoo County in the previous tax year, except that a non-profit entity need not meet this requirement.

This local preference policy applies only to purchases for materials, supplies, capital outlay, and services for maintenance, repair or operation of City facilities that are over \$25,000. If more than 50% of the contract is sub-contracted to firms located outside of Kalamazoo County that bid does not qualify for the local preference policy outlined above. The local preference policy will not apply if prohibited by law. The Purchasing Manager has the authority to finally determine if the bidder qualifies as a Kalamazoo County bidder as set forth herein. The Purchasing Manager may take into account the permanency of the business in Kalamazoo, and whether the business appears to be claiming to be a Kalamazoo County business solely or primarily to qualify as a Kalamazoo County business under this Resolution, and any other material factors.

**CERTIFICATION**

If you qualify as a Kalamazoo County bidder and wish to be considered for the local preference provisions as provided above please certify that fact by providing the information requested below and attesting to its accuracy.

Firm Name: \_\_\_\_\_

Street Address of Business: \_\_\_\_\_

City, State, and Zip Code: \_\_\_\_\_

Number of employees working in Kalamazoo County: \_\_\_\_\_

Name the city or township to which business real and/or personal property taxes are paid or provide non-profit status: \_\_\_\_\_

The above information is accurate:

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Title: \_\_\_\_\_

**CITY OF KALAMAZOO EX-OFFENDER POLICY CHECKLIST**

As part of the City’s commitment to reducing unacceptable poverty, encouraging rehabilitation, reducing recidivism and strengthening families in Kalamazoo, the City has updated its Purchasing Policy to ensure that firms with whom the City does business share in this commitment by utilizing hiring practices that do not unfairly deny people with arrest and conviction records gainful employment. *(Important: This requirement also extends to any subcontractors the bidder intends to use to fulfill the contract for goods or services being sought from the City.)*

**Part I: Proof that the bidder does not inquire about an individual’s past arrest or criminal history on the bidders employment application form**

- Attach a copy of the current application for employment being used by the bidder

**Part II: Certification that the bidder does not use an individual’s past arrest or criminal history to unlawfully discriminate against them by checking *one or more* of the following:**

- That pursuant to federal or state law bidder is precluded from hiring persons with certain criminal records from holding particular positions or engaging in certain occupations by providing a cite to the applicable statute or regulation; if checking this box, provide a citation to the applicable statute or rule upon which the bidder is relying:\_\_\_\_\_
- That bidder conducts criminal history background checks only as necessary, and only after making a conditional offer of employment; that any withdrawal of an offer of employment to an individual because of a past criminal history is job-related and consistent with business necessity after the individual has been provided an individualized assessment opportunity to review and challenge or supplement the history of past criminal conduct being relied upon by the bidder;
- That the use by bidder of criminal history background checks complies with the U.S. Equal Employment Opportunity Commission’s Enforcement Guidance on the Consideration of Arrest and Conviction Records in Employment Decisions and that the bidder has not had a determination rendered against it in the past 7 years that it discriminated against a person through the use of an individual’s arrest or criminal history.

I CERTIFY THAT THE ABOVE STATEMENTS ARE TRUE.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Position

*NOTE: This blanket addendum is for informational purposes only and does not need to be acknowledged by bidders in their submission.*

**COVID-19 ADDENDUM #2**

January 1, 2022

**TO: ALL Prospective Bidders**  
**PROJECT: ALL Upcoming Projects**

The purpose of this addendum is to clarify and/or modify the sealed bid delivery and bid opening process for all upcoming projects. All work affected is subject to all applicable terms and conditions of the Bidding and Contract Documents.

**1. UPDATE TO SEALED BID DELIVERY AND BID OPENING POLICY:**

**Effective immediately and continuing until further notice, the City of Kalamazoo will return to IN-PERSON bid openings following City Hall guidelines, including Mask Mandate.**

**BIDS MUST BE RECEIVED BEFORE THE DUE DATE AND TIME – LATE BIDS WILL NOT BE CONSIDERED.**

**Bidders can submit sealed bids in one of the following ways:**

- **Mail your bid**, to be received before the bid due date and time indicated in the bid document, to the City of Kalamazoo at the following address:  

City of Kalamazoo  
Purchasing Division  
241 West South Street  
Kalamazoo, MI 49007
- **Deliver your bid to the Treasurer’s Office Payment Drop Box** located in the northwest corner of City Hall before the bid due date and time indicated in the bid document.
- **Deliver your bid to City Hall In Person before** the bid due date and time indicated in the bid document.

All bids shall be tightly sealed in an envelope plainly marked SEALED BID and identified by project name, bid opening date and time. Bids opened by mistake, due to improper identification, will be so documented and resealed. The Purchasing Division will maintain and guarantee confidentiality of the contents until the specified opening date and time. Bids submitted by fax machine or email will not be accepted.

The Purchasing Division will post bid tabulations to the City of Kalamazoo website within 24 hours after the bid opening date and time at: <https://www.kalamazoo.org/bidopportunities>.

Questions regarding this sealed bid delivery and bid opening policy change related to the COVID-19 virus should be directed to the City of Kalamazoo at (269) 337-8020.

Sincerely,



Michelle Emig  
Purchasing Division Manager

I hereby state that all of the information I have provided is true, accurate and complete. I hereby state that I have the authority to submit this bid which will become a binding contract if accepted by the City of Kalamazoo. I hereby state that I have not communicated with nor otherwise colluded with any other bidder, nor have I made any agreement with nor offered/accepted anything of value to/from an official or employee of the City of Kalamazoo that would tend to destroy or hinder free competition.

The firm’s identification information provided will be used by the City for purchase orders, payment and other contractual purposes. If the contractual relationship is with, or the payment made to, another firm please provide a complete explanation on your letterhead and attach to your bid. Please provide for accounts payable purposes:

Tax Identification Number (Federal ID): \_\_\_\_\_

Remittance Address: \_\_\_\_\_

Financial Contact Name: \_\_\_\_\_ Financial Contact Phone Number: \_\_\_\_\_

Financial Contact Email Address: \_\_\_\_\_

I hereby state that I have read, understand and agree to be bound by all terms and conditions of this bid document.

SIGNED: \_\_\_\_\_ NAME: \_\_\_\_\_  
(Type or Print)

TITLE: \_\_\_\_\_ DATE: \_\_\_\_\_

FIRM NAME: \_\_\_\_\_  
(if any)

ADDRESS: \_\_\_\_\_  
(Street address) (City) (State) (Zip)

PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

**FOR CITY USE ONLY - DO NOT WRITE BELOW**

**SECTION III  
SPECIFICATIONS AND SPECIAL CONDITIONS**

**1. SCOPE AND INTENT**

This project includes supplying all labor, materials, tools, equipment, supplies, permit fees, disposal fees and all other incidental costs associated with the loading, lawful transportation, and lawful disposal in an approved Type II landfill (or approved site) of belt press solids (biosolids) generated by the Kalamazoo Water Reclamation Plant (KWRP) located at 1415 North Harrison Street, Kalamazoo, Michigan.

**2. GENERAL**

2.1 The belt press solids are generated twenty-four (24) hours a day, seven (7) days a week, year-round. Any interruption in the residual solid generation at KWRP plant due to the inability or failure of the Contractor to perform his/her duties as specified herein is unacceptable and will be deemed to be a violation of the terms of this contract.

2.2 **PENALTY CLAUSE: Any unplanned shutdowns due to lack of Contractor response time, failure to provide equipment, or failure to provide service, shall be assessed a penalty of up to \$5,000 per occurrence.**

2.3 The quality of belt press solids generated is a function of the raw sewage quality and operation of the solid stabilization process at the KWRP. Belt press solids normally generated for disposal are Dewatered Primary and Secondary Solids. Generated solids will be a minimum of 21% total solids. **The amounts listed are estimates only based on current and projected production rates. Actual rates may be higher or lower and are for estimating purposes only.**

2.4 The belt press solids consist of inorganic solids, biomass and spent powdered activated carbon. The most recent sampling reports are included in Appendix B. Since the frequency of the operation and total quantities produced are estimates only, the City gives no guarantee as to the actual volume of belt press solids.

2.5 The Wastewater Division Manager (Jim Cornell) shall be the contact person for day-to-day issues related to the Contract and can be reached at (269) 337-8644.

**3. TRANSPORTATION**

3.1 The Contractor shall lawfully transport the belt press solids from the Kalamazoo Water Reclamation Plant (KWRP) located at 1415 North Harrison Street, Kalamazoo, Michigan to the Type II landfill disposal site named in the bidder's questionnaire. If necessary, belt press solids may be transported to a temporary storage site until it can be disposed of at the landfill. All licenses, fees and other incidental costs associated with this transport shall be the responsibility of the Contractor. The Contractor shall abide by all applicable load restrictions, traffic regulations and ordinances to ensure safe and proper transportation. The Contractor shall cover the belt press solids during transport as required by D.O.T. regulations to prevent spillage, excessive odor or other factors.

3.2 In the event that spillage does occur in the transportation from KWRP to the disposal site – The Contractor must, at a minimum, follow the City's Spill Response Plan (Appendix C). The Contractor will be responsible for all costs incurred in the clean-up process. The Contractor must also provide the City with their own Spill Response Plan on handling spills.

**4. ON-SITE STAGING AND TEMPORARY STORAGE**

- 4.1 Filled containers may be staged on KWRP site with approval of the City or in the designated container staging area, for a time not to exceed 48 hours. Containers must be removed from the staging area and transported off site for disposal or temporary storage, if required.
- 4.2 The Contractor shall provide lawful temporary storage of belt press solids, if needed. It is the responsibility of the Contractor to acquire any and all necessary approvals from all governmental units having jurisdiction over this temporary storage area. The temporary storage site selected by the Contractor shall be subject to the approval of the City.

**5. DISPOSAL**

- 5.1 The Contractor shall provide for lawful disposal of the belt press solids. All applicable state, federal and local permits and licenses shall be secured by the Contractor prior to commencing disposal. **A copy of the valid Michigan Department of Environmental Quality (MDEQ) Operating Permit shall be submitted with the bid.**
- 5.2 The Contractor shall be required by the City to participate in a manifest system with the purpose of accounting for each load of residual solids removed from the City's site. The manifest forms will be supplied by the City and will require the Contractor to secure the signature of the disposal site operator or his/her designate, verifying that the solids have been received and properly disposed.

**6. LOADING FACILITIES**

- 6.1 The Contractor's containers will be loaded at a City loading facility by Contractor's personnel. The Contractor will use their own equipment for loading. The Contractor will be responsible for the fueling, maintenance, upkeep of their equipment and for any other costs of the self-loading. The Contractor will be responsible for the clean up of the loading area including de-icing during cold weather. At the end of their day, all empty bunkers will be cleaned. The loader driving area will be cleaned at least twice a day, one of which is at the end of the shift. The City will supply the Contractor with convenient access to and from the loading facility within the boundaries of the Wastewater Treatment facility only. A review of the loading facility can be made with Jim Cornell, Wastewater Division Manager. To schedule an appointment call (269) 337-8644.
- 6.2 The Contractor is required to provide personnel and necessary equipment to ensure a minimum of eight (8) loads a day.
- 6.3 A minimum of two (2) empty bunkers shall be available at the end of the business day, Monday through Saturday, at the solids handling facility. The City of Kalamazoo will decide if hauling on Saturday is needed. The Contractor will be required to provide adequate service to allow continuous City operations with no shutdowns.

**7. CONTAINERS**

- 7.1 The Contractor shall supply sealed containers for use in the temporary storage and transportation of the residual solids. Gravel trains are the preferred vehicle for solids disposal to landfills or other approved sites. Any container linings deemed necessary by the Contractor or City for effective disposal shall be supplied by the Contractor. If there is belt press solids buildup in the containers, the Contractor will be required to weigh in containers or line the containers, as deemed necessary by the City. The Contractor shall furnish and use container covers for use in the staging, transport and temporary storage, if deemed necessary by the City.
- 7.2 The containers shall be compatible with the City's loading facility. Any modification to the City's loading facility to accommodate the Contractor's containers shall be subject to City approval and shall be done at the Contractor's expense.

**8. PENALTIES**

The Project Manager shall have the sole discretion to assess fines for repeated performance deficiencies, including, but not limited to the following:

- 8.1 Inappropriate behavior as a service representative of the City.
- 8.2 Excessive level of missed collections causing reduced bunker space or other similar complaints.
- 8.3 Other performance deficiencies which the Contractor has received prior notice of in writing from the Project Manager.
- 8.4 Lack of courtesy and responsiveness.
- 8.5 The failure of the Contractor to account for every load of the belt press solids shall be deemed to be a violation of the terms of this Contract.

The Project Manager shall take into consideration:

- 8.6 Previous occurrences, if any, of the same nature.
- 8.7 Remedial action proposed or implemented by the Contractor.
- 8.8 Seriousness of the complaint.
- 8.9 Prior communication regarding the type of complaint under consideration.

A minimum assessment of \$200 and a maximum assessment of \$5,000 per occurrence may be levied pursuant to this section.

**9. PRE-BID MEETING**

A non-mandatory pre-bid meeting with representatives from the City of Kalamazoo will be held at **10:00 a.m. on Tuesday, November 15, 2022 in Conference Room A at the Kalamazoo Water Reclamation Plant, 1415 N. Harrison Street, Kalamazoo, MI**. There will be a walk-through after the pre-bid meeting for a visual inspection of the facility.

**10. QUALIFICATION OF BIDDERS/AWARD**

- 10.1 All bids will be evaluated by the City using the information provided in the Bidders Questionnaire, the Bid and Award page, and any attachments.
- 10.2 Bids will be considered from only the responsible organizations now or recently engaged in the performance of service contracts comparable to those described in the attached specifications. In order to determine his/her qualifications, each Bidder will be requested to furnish a narrative statement listing comparable contracts which he/she has performed; the general history of the firm's operating organization; and a staff of regular employees adequate for continuous performance of the work and, if requested to do so, demonstrate that his/her equipment and/or capability for the work contemplated is sufficient, adequate and suitable.
- 10.3 The following criteria will be used to determine the best firm to award the Contract to:
- A. Total cost;
  - B. Experience of firm, in both terms of longevity and projects similar in nature;
  - C. References of firms for services performed on similar projects;
  - D. Available equipment, drivers and containers;
  - E. Location of primary, backup and temporary disposal sites.
  - F. Valid MDEQ Operating Permit

**11. CONTRACT PERIOD AND EXTENSIONS**

- 11.1 The Contract shall be in effect for a basic three (3)-year period commencing on or about **December 1, 2022**, depending on date of Notice to Proceed, and continuing through **November 30, 2025**.
- 11.2 The City shall have the option of renewing this contract for two (2) one (1)-year periods, subject to availability of funds, job performance and satisfactory service to the City of Kalamazoo and the following renewal and/or cancellation option. All renewals shall be upon mutual agreement of both parties made in writing.
- 11.3 All contracts and extensions are subject to the approval of the City Commission.

**12. PRICES**

The price bid shall include all costs to the City for providing the specified services and fees incidental to them, including government fees and taxes. The prices bid for the first two years of the Contract shall remain firm through the first two years of the Contract. The one exception is a change in fees required by the government. The City will consider amending the price to take into account changes to required governmental fees levied in conjunction with the services required by this Contract.

- 12.1 The Unit Prices shall be based on routine operation and generation of plant belt press solids. The routine operation shall include loading, transportation and disposal of the following materials:



- Dewatered Belt Press Solids (landfill)

- 12.2 Prices quoted shall include freight, demurrage, labor, materials, equipment, taxes, fuel surcharges, and any other incidentals required for the performance of this contract.
- 12.3 The prices bid for the first two years of the Contract shall remain firm through the first two years of the Contract. All requested contract price increases beginning with year three of the contract will require proof, supplied by the Contractor, of increased costs related to fulfillment of the services outlined in the Contract.

Alternate Pricing:

- 12.4 Cost for moving biosolids to in-plant staging area.

It is estimated that the total quantity of belt press solids generated during routine operation will be approximately 220 tons per day.

**NOTE:** The quantity of total belt press solids stated herein are estimated based on current operating conditions and projected operating conditions. Actual rates may be higher or lower.

**13. PROJECT MANAGER**

- 13.1 The Wastewater Division Manager, Jim Cornell or his designated representative, shall have general authority over this Contract. He shall have authority to reject any work which does not conform to this Contract, decide questions or interpretations which may arise from these contract documents, and to stop the work whenever such stoppage may be necessary to ensure the proper execution of this Contract. He will audit the billings, approve payments, and oversee schedules.
- 13.2 The Contractor shall immediately report to the Wastewater Division Manager any questionable or obvious error or omission, or any ambiguity or inconsistency which may be apparent and shall not proceed with the work until the issue has been resolved.

**14. EQUIPMENT, INSPECTION AND LIABILITY**

- 14.1 The Wastewater Division Manager shall have the right to inspect all equipment which is to be used in carrying out the terms of this Contract. Any such equipment or components which do not comply with local, federal and state codes may be rejected by the Wastewater Division Manager, and shall be replaced by the Contractor at no cost to the City.
- 14.2 The Contractor shall assume all liability for any damage to the Contractor's equipment while performing the work herein contracted. No claim of loss or damage will be considered by the City. The Contractor shall have fully operational backup equipment, to assure no lapse in schedule, readily available.

**15. WORK SCHEDULING**

- 15.1 The work shall be performed as outlined herein. Every effort will be made by the City to cooperate with the Contractor regarding scheduling and the establishment of policies and procedures in addition to those noted herein.

- 15.2 It is expressly understood and agreed by, and between, the Contractor and the City that the contract time for the completion of the work described herein is a reasonable time, considering all of the applicable factors. It is further understood and agreed that **TIME IS OF THE ESSENCE** in respect to the work contemplated hereunder and the Contractor agrees to do the work covered by the Contract in conformity with the provisions set forth herein. Failure on the part of the Contractor to complete the work as specified within the stated time shall constitute default by the Contractor. Regardless of any other provision of this Contract, if Contractor fails to perform as herein requested, the Contractor shall be liable to the City for all damages incurred by the City including, but not limited to fees, fines and the like. Contractor shall still remain liable to the City for any other costs or damages due to reasons unrelated to timely performance.

## 16. PAYMENT

- 16.1 Payment shall be on a **monthly basis only**; any deviation to this schedule shall require prior approval of the Wastewater Division Manager. The Contractor shall submit an invoice which reflects the amount of belt press solids (by ton weight) removed from the City's site during the calendar month invoice. Each load of belt press solids may be weighed by a representative of the City at the City's site prior to removal from the site. Payment shall be based on this weight determination. **NOTE: A sample of the bidder's invoice should be included with submitted bid.**
- 16.2 Two (2) copies of all invoices are required; one (1) shall be forwarded to the Budget and Accounting Division at 241 West South Street, Kalamazoo, MI 49007 or via email to [APINVOICE@KALAMAZOOCITY.ORG](mailto:APINVOICE@KALAMAZOOCITY.ORG); the other shall be sent overnight to KWRP 1415 North Harrison Street, Kalamazoo MI, 49007, Attn: **Steve Helmer**. Invoices must correlate hauled waste with KWRP manifest. Billing cycles must be run on a calendar month period.
- 16.3 Penalties incurred, detailed under Special Requirements, Item 3, shall be invoiced by the City and are due within 30 days.
- 16.4 Services must be billed within 90 days of being provided. The City will not accept invoices for services provided more than 90 days prior to receipt of the invoice in order to prevent double payment for work provided.

## 17. RESPONSIBILITIES OF CONTRACTOR

- 17.1 The Contractor shall be responsible for the satisfactory and complete execution of the work in accordance with the true intent of the specifications.
- 17.2 The Contractor shall be responsible for protecting and preserving from damage, any and all facilities, public and private which are adjacent to the areas where work is being performed.
- 17.3 The Contractor shall assume all liability from any and all property damage or personal injuries incurred during the course of performing the work herein contracted. No claim of loss, damage or injury will be considered by the City.
- 17.4 When a disposal site or temporary storage site is to be changed, the Contractor shall notify the City, in writing, in advance of the change.

17.5 The Contractor must follow the City's SOP listed in Appendix C in the event of spillage in route to the disposal site.

17.6 The Contractor shall assume all clean-up costs and liability in the event of a spill.

**18. LICENSES AND PERMITS**

Awarded Contractor shall be responsible for purchasing any required licenses or permits for disposal facilities and equipment, if necessary. If Contractor equipment is being used for collection, transportation and disposal said equipment shall be properly licensed and permitted for its use.

**19. QUESTIONS**

Questions relative to the specifications may be addressed to Jim Cornell, Wastewater Division Manager at (269) 337-8644, [cornellj@kalamazoocity.org](mailto:cornellj@kalamazoocity.org). Questions relative to the general bid requirements may be addressed to Craig Hull, Buyer at (269) 337-8444 or [hullc@kalamazoocity.org](mailto:hullc@kalamazoocity.org). This does not, however, relieve the bidder from Item 3, Page 1.

**SECTION IV**  
**INDEMNITY AND INSURANCE**

Contractor, or any of their subcontractors, shall not commence work under this contract until they have obtained the insurance required under this paragraph, and shall keep such insurance in force during the entire life of this contract. All coverage shall be with insurance companies licensed and admitted to do business in the State of Michigan and acceptable to the City of Kalamazoo within ten (10) days of the Notice of Award. The requirements below should not be interpreted to limit the liability of the Contractor. All deductibles and SIR's are the responsibility of the Contractor.

The Contractor shall procure and maintain the following insurance coverage:

Workers' Compensation Insurance including Employers' Liability Coverage, in accordance with all applicable statutes of the State of Michigan.

Commercial General Liability Insurance on an "Occurrence Basis" with limits of liability not less than \$1,000,000 per occurrence and aggregate. Coverage shall include the following extensions: (A) Contractual Liability; (B) Products and Completed Operations; (C) Independent Contractors Coverage; (D) Broad Form General Liability Extensions or equivalent, if not already included and (E) XCU coverage if the nature of the contract requires XC or U work.

Automobile Liability in accordance with all applicable statutes of the State of Michigan, with limits of liability not less than \$1,000,000 per occurrence, combined single limit for Bodily Injury, and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles, and all hired vehicles.

Additional Insured: Commercial General Liability and Automobile Liability, as described above, shall include an endorsement stating that the following shall be *Additional Insureds*: The City of Kalamazoo, all elected and appointed officials, all employees and volunteers, all boards, commissions, and/or authorities and board members, including employees and volunteers thereof. It is understood and agreed that by naming the City of Kalamazoo as additional insured, coverage afforded is considered to be primary and any other insurance the City of Kalamazoo may have in effect shall be considered secondary and/or excess.

To the fullest extent permitted by law the Contractor agrees to pay on behalf of, indemnify, and hold harmless the City of Kalamazoo, its elected and appointed officials, and employees against any claims, demands, suits, or loss, including all costs connected therewith, and for any damages which may be asserted, claimed, or recovered against or from the City of Kalamazoo, by reason of personal injury, including bodily injury or death and/or property damage, including loss of use thereof, caused in whole or part by any negligent act or omission by the Contractor, its employees, agents, or officers which arises out of, or is in any way connected or associated with, this contract.

Cancellation Notice: All policies, as described above, shall include an endorsement stating that it is understood and agreed that thirty (30) days, or ten (10) days for non-payment of premium, Advance Written Notice of Cancellation, Non-Renewal, Reduction, and/or Material Change shall be sent to: City of Kalamazoo, Purchasing Division, 241 W. South Street, Kalamazoo, MI 49007.

Proof of Insurance Coverage: The Contractor shall provide the City of Kalamazoo at the time that the contracts are returned by him/her for execution, or within 10 days of Notice of Award, whichever is earlier, a Certificate of Insurance as well as the required endorsements. In lieu of required endorsements, if applicable, a copy of the policy sections where coverage is provided for additional insured and cancellation notice would be acceptable. Copies or certified copies of all policies mentioned above shall be furnished, if so requested.

**INDEMNITY AND INSURANCE**

*Continued*

If any of the above coverages expire during the term of this contract, the Contractor shall deliver renewal certificates and/or policies to City of Kalamazoo at least ten (10) days prior to the expiration date.

Scope of Coverage: The above requirements and conditions shall not be interpreted to limit the liability of the Contractor under this Contract, but shall be interpreted to provide the greatest benefit to the City and its officers and employees. The above listed coverages shall protect the Contractor, its employees, agents, representatives and subcontractors against claims arising out of the work performed. It shall be the Contractor's responsibility to provide similar insurance for each subcontractor or to provide evidence that each subcontractor carries such insurance in like amount prior to the time such subcontractor proceeds to perform under the contract.

**SECTION V**  
**TERMS AND CONDITIONS**

**1. AWARD OF CONTRACT**

- A. This contract will be awarded to that responsible bidder whose bid, conforming to this solicitation, will be most advantageous to the City, price and other factors considered. The City reserves the right to accept or reject any or all bids and waive informalities and minor irregularities in bids received. Other factors include, as an example but not limited to, delivery time, conformance to specifications, incidental costs such as demurrage and deposits, etc.

Notification of award will be in writing by the Purchasing Agent. Upon notification, the Contractor shall submit to the Purchasing Division all required insurance certificates (if required) and such other documentation as may be requested or required hereunder. Upon their receipt and subsequent approval by the City, the Purchasing Agent will forward to the Contractor a written **NOTICE TO PROCEED**. Work shall **NOT** be started until such **NOTICE TO PROCEED** is received by the Contractor.

- B. Unilateral changes in bid prices by the bidder shall not be allowed. However, the City, at its sole option, reserves the right to negotiate with bidders in the event of, but not limited to:
- 1) No bids received;
  - 2) A single bid being received; or
  - 3) Prices quoted or bid are over budget and/or unreasonable.

**2. COMPLETE CONTRACT**

This bid document together with its addenda, amendments, attachments and modifications, when executed, becomes the complete contract between the parties hereto, and no verbal or oral promises or representations made in conjunction with the negotiation of this contract shall be binding on either party.

**3. SUBCONTRACTORS - NON ASSIGNMENT**

Bidders shall state in writing any and all sub-contractors to be associated with this bid, including the type of work to be performed. The Contractor shall cooperate with the City of Kalamazoo in meeting its commitments and goals with regard to maximum utilization of minority and women-owned business enterprises.

The Contractor hereby agrees and understands that the contract resulting from this solicitation shall not be transferred, assigned or sublet without prior written consent of the City of Kalamazoo.

**4. TAXES**

The City of Kalamazoo is exempt from all federal excise tax and state sales and use taxes.

5. **INVOICING**

All original invoice(s) will be sent to the Financial Services Division, 241 W. South Street, Kalamazoo, MI 49007 or via email at [apinvoice@kalamazoo.org](mailto:apinvoice@kalamazoo.org). The Finance Division processes payments after receipt of an original invoice from the Contractor and approval by the department. The City of Kalamazoo’s policy is to pay invoice(s) within 30 days from the receipt of the original invoice, if the services or supplies are satisfactory and the proper paperwork and procedures have been followed. **In order to guarantee payment to the vendor on a timely basis, the vendor needs to receive a purchase order number before supplying the City of Kalamazoo with goods or services.** All original, and copies of original invoice(s), will clearly state which purchase order they are being billed against.

**The City of Kalamazoo is a government municipality and therefore is tax exempt from all sales tax.**

**The vendor is responsible for supplying the Finance Division with a copy of their W9 if they are providing a service to the City of Kalamazoo.**

6. **PAYMENTS**

Unless otherwise specified by the City in this contract, the Contractor will be paid in not more than thirty (30) days after receipt of a properly executed invoice, the sum stipulated herein for supplies delivered and accepted, or service rendered and accepted. Payments are processed by the Management Services Financial Services Division after receipt of an original invoice from the Contractor and approval by the department.

7. **CHANGES AND/OR CONTRACT MODIFICATIONS**

The City reserves the right to increase or decrease quantities, service or requirements, or make any changes necessary at any time during the term of this contract, or any negotiated extension thereof. Price adjustments due to any of the foregoing changes shall be negotiated and mutually agreed upon by the Contractor and the City.

Changes of any nature after contract award which reflect an increase or decrease in requirements or costs shall not be permitted without prior approval by the Purchasing Agent. City Commission approval may also be required.

**ANY CHANGES PERFORMED IN ADVANCE OF PURCHASING AGENT APPROVAL MAY BE SUBJECT TO DENIAL AND NON-PAYMENT.**

8. **LAWS, ORDINANCES AND REGULATIONS**

The Contractor shall keep himself/herself fully informed of all local, state and federal laws, ordinances and regulations in any manner affecting those engaged or employed in the work and the equipment used. Contractor and/or employees shall, at all times, serve and comply with such laws, ordinances and regulations.

Any permits, licenses, certificates or fees required for the performance of the work shall be obtained and paid for by the Contractor.

This contract shall be governed by the laws of the State of Michigan.

**9. RIGHT TO AUDIT**

The City or its designee shall be entitled to audit all of the Contractor's records, and shall be allowed to interview any of the Contractor's employees, throughout the term of this contract and for a period of three years after final payment or longer if required by law to the extent necessary to adequately permit evaluation and verification of:

- A. Contractor compliance with contract requirements,
- B. Compliance with provisions for pricing change orders, invoices or claims submitted by the Contractor or any of his payees.

**10. HOLD HARMLESS**

If the negligent acts or omissions of the Contractor/Vendor or its employees, agents or officers, cause injury to person or property, the Contractor/Vendor shall indemnify and save harmless the City of Kalamazoo, its agents, officials, and employees against all claims, judgments, losses, damages, demands, and payments of any kind to persons or property to the extent occasioned from any claim or demand arising therefrom.

**11. DEFAULT**

The City may at any time, by written notice to the Contractor, terminate this contract and the Contractor's right to proceed with the work, for just cause, which shall include, but is not limited to the following:

- A. Failure to provide insurance and bonds (when called for), in the exact amounts and within the time specified or any extension thereof.
- B. Failure to make delivery of the supplies, or to perform the services within the time specified herein, or any extension thereof.
- C. The unauthorized substitution of articles for those bid and specified.
- D. Failure to make progress if such failure endangers performance of the contract in accordance with its terms.
- E. Failure to perform in compliance with any provision of the contract.
- F. **Standard of Performance** - Contractor guarantees the performance of the commodities, goods or services rendered herein in accordance with the accepted standards of the industry or industries concerned herein, except that if this specification calls for higher standards, then such higher standards shall be provided.

Upon notice by the City of Contractor's failure to comply with such standards or to otherwise be in default of this contract in any manner following the Notice to Proceed, Contractor shall immediately remedy said defective performance in a manner acceptable to the City. Should Contractor fail to immediately correct said defective performance, said failure shall be considered a breach of this contract and grounds for termination of the same by the City.

In the event of any breach of this contract by Contractor, Contractor shall pay any cost to the City caused by said breach including but not limited to the replacement cost of such goods or services with another Contractor.



The City reserves the right to withhold any or all payments until any defects in performance have been satisfactorily corrected.

In the event the Contractor is in breach of this contract in any manner, and such breach has not been satisfactorily corrected, the City may bar the Contractor from being awarded any future City contracts.

- G. All remedies available to the City herein are cumulative and the election of one remedy by the City shall not be a waiver of any other remedy available to the City either listed in this contract or available by operation of law.

**12. TERMINATION OF CONTRACT**

The City may, at any time and without cause, suspend the work of this contract for a period of not more than ninety days after providing notice in writing to the Contractor. The Contractor shall be allowed an adjustment in the contract price or an extension of the contract times, or both, directly attributable to the suspension if Contractor makes an approved claim.

The City may, without prejudice to any other right or remedy of the City, and with or without cause, terminate the contract by giving seven days written notice to the Contractor. In such case the Contractor shall be paid, without duplication, for the following items:

- A. Completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such work;
- B. Expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials or equipment as required by the contract documents in connection with uncompleted work, plus fair and reasonable sums for overhead and profit on such expenses;
- C. All documented claims, costs, losses and damages incurred in settlement of terminated contracts with Subcontractors, Suppliers and others; and
- D. Reasonable expenses directly attributable to termination.

The Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

**13. INDEPENDENT CONTRACTOR**

At all times, the Contractor, any of his/her employees, or his/her sub-contractors and their subsequent employees shall be considered independent contractors and not as City employees. The Contractor shall exercise all supervisory control and general control over all workers' duties, payment of wages to Contractor's employees and the right to hire, fire and discipline their employees and workers. As an independent contractor, payment under this contract shall not be subject to any withholding for tax, social security or other purposes, nor shall the Contractor or his/her employees be entitled to sick leave, pension benefit, vacation, medical benefits, life insurance or workers' unemployment compensation or the like.

**14. MEETINGS**

The Contractor and/or Project Supervisor shall be available to meet with the Department Head or Project Manager at a mutually agreeable time to discuss problems, issues or concerns relative to the contract. Either party may call a meeting at any time. When such a request for a meeting is made, the meeting date shall, in no case exceed five (5) working days after the request; and, if in the sole opinion of the Department Head, the severity of the circumstance warrants, no more than one (1) working day.

**15. INSPECTION OF WORK SITE**

Before submitting bids or quotes for work, the Contractor shall be responsible for examining the work site and satisfying himself/herself as to the existing conditions under which he/she will be obligated to operate, or that in any way affects the work under this contract. No allowance shall be made subsequently, in behalf of the Contractor, for any negligence on his/her part.

**16. CONTRACT PERIOD, EXTENSIONS, CANCELLATION**

- A. The contract shall be in effect for the term stated in the specifications.
- B. The City may opt to extend this contract upon mutual agreement of both parties. The number of extensions shall be limited to that stated in the specifications.
- C. The City may, from time to time, find it necessary to continue this contract on a month-to-month basis only, not to exceed a six (6) month period. Such month-to-month extended periods shall be by mutual agreement of both parties, with all provisions of the original contract or any extension thereof remaining in full force and effect.
- D. All contracts, extensions and cost increases are subject to availability of funds and the approval of the City Commission (if required).
- E. The City reserves the right to cancel the contract due to non-appropriation of funds by the City with thirty (30) days written notice.
- F. Either party may terminate the contract (or any extension thereof) without cause at the end of any twelve (12) month term by giving written notice of such intent at least 60 days prior to the end of said twelve (12) month term.
- G. All notices are in effect commencing with the date of mailing. Written notices may be delivered in person or sent by First Class mail; faxed or emailed to the last known address.
- H. If cancellation is for default of contract due to non-performance, the contract may be canceled at any time (see Item 11, DEFAULT)

**APPENDIX A**  
**NON-DISCRIMINATION CLAUSE FOR ALL CITY OF KALAMAZOO CONTRACTS**

The Contractor agrees to comply with the Federal Civil Rights Act of 1964 as amended; the Federal Civil Rights Act of 1991 as amended; the Americans With Disabilities Act of 1990 as amended; the Elliott-Larson Civil Rights Act, Act. No. 453, Public Act of 1976 as amended; the Michigan Handicappers Civil Rights Act, Act No. 220, Public Act of 1976 as amended, City Ordinance 1856 and all other applicable Federal and State laws. The Contractor agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, sex, age, height, weight, marital status, physical or mental disability, family status, sexual orientation or gender identity that is unrelated to the individual's ability to perform the duties of the particular job or position. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer, recruitment advertising, layoff or termination; rates of pay or other forms of compensations; and selection for training, including apprenticeship.
2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, national origin, sex, age, height, weight, marital status, physical or mental disability family status, sexual orientation or gender identity that is unrelated to the individuals ability to perform the duties of the particular job or position.
3. If requested by the City, the Contractor shall furnish information regarding practices, policies and programs and employment statistics for the Contractor and subcontractors. The Contractor and subcontractors shall permit access to all books, records and accounts regarding employment practices by agents and representatives of the City duly charged with investigative duties to assure compliance with this clause.
4. Breach of the covenants herein may be regarded as a material breach of the contract or purchasing agreement as provided in the Elliott-Larsen Civil Rights Act and City Ordinance 1856.
5. The Contractor will include or incorporate by reference the provisions of the foregoing paragraphs 1 through 4 in every subcontract or purchase order unless exempted by the rules, regulations or orders of the Michigan Civil Rights Commission\* and will provide in every subcontract or purchase order that said provision will be binding upon each subcontractor or seller.
6. The Contractor will not preclude a person with a criminal conviction from being considered for employment unless otherwise precluded by federal or state law. (for contracts over \$25,000)

The Elliott-Larson Civil Rights Act, Sec. 202 of Act. No. 453 of 1976 reads in part as follows:

Sec. 202. (1) An employer shall not:

- (a) Fail or refuse to hire, or recruit, or discharge or otherwise discriminate against an individual with respect to employment, compensation, or a term condition or privilege of employment because of religion, race, color, national origin, age, sex, height, weight or marital status.
- (b) Limit, segregate or classify an employee or applicant for employment in a way which deprives or tends to deprive the employee or applicant of an employment opportunity or otherwise adversely affects the status of an employee or applicant because of religion, race, color, national origin, age, sex, height, weight or marital status.
- (c) Segregate, classify or otherwise discriminate against a person on the basis of sex with respect to a term, condition or privilege of employment, including a benefit plan or system.

\* Except for contracts entered into with parties employing less than three employees.



# **APPENDIX B**

## **TRACE LAB REPORTS**

**Bid Ref. #: 96871-016.0**

Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444-2673



231-773-5998 Phone  
888-979-4469 Fax  
www.trace-labs.com

May 24, 2022

Ms. Shannan Deater  
Kalamazoo, City of  
1415 N. Harrison St.  
Kalamazoo, MI 49007

RE: Trace Project 22E0298  
Client Project Annual NPDES Sampling

Dear Ms. Deater:

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

For clients that require NELAP Accreditation, Trace certifies that these test results meet all requirements of the NELAP Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAP at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.773.5998 or by email at [jmink@trace-labs.com](mailto:jmink@trace-labs.com).

Sincerely,

A handwritten signature in black ink, appearing to read "Jon Mink".

Jon Mink  
Senior Project Manager  
Enclosures



NJDEP Accreditation No. MI008

This report shall not be reproduced, except in full, without the written consent of Trace Analytical Laboratories, Inc.

Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444-2673



231-773-5998 Phone  
888-979-4469 Fax  
www.trace-labs.com

### SAMPLE SUMMARY

Trace Project ID: 22E0298  
Client Project ID: Annual NPDES Sampling

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
22E0298-01	21-125-CMBC	Solid	KWRP	05/05/22 22:00	05/06/22 12:00

### CERTIFICATE OF ANALYSIS

This report shall not be reproduced, except in full, without the written consent of Trace Analytical Laboratories, Inc.

**AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT**

**DEFINITIONS**

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the laboratory is not accredited by NELAP for this compound
NA	Indicates that the compound is not available.

NOTE: Samples for volatiles that have been extracted with a water miscible solvent were corrected for the total volume of the solvent/water mixture.  
 Solid matrices Method Blanks are at 100% solids as such results are the same wet or dry.

**DATA QUALIFIERS**

Trace ID: 22E0298-01

***Analysis: EPA 8270E***

Note 407 : The reporting limit was raised due to a post extraction dilution required based on matrix interference present in the sample.

Trace ID: T122885-BLK1

***Analysis: EPA 8270E***

**2,4,6-Tribromophenol** Note 801 : One of the acid surrogate recoveries was outside the control limits. Since the other two acid surrogates were within the control limits, no data require qualification.

**Terphenyl-d14** Note 802 : One of the base/neutral surrogate recoveries was outside the control limits. Since the other two base/neutral surrogates were within the control limits, no data require qualification.

Trace ID: T122885-BS1

***Analysis: EPA 8270E***

**2,4,6-Tribromophenol** Note 305.5 : The surrogate recovery was out of control when compared to the control limits. Because all spike recoveries required no qualification, no data require qualification.

**2-Fluorophenol** Note 305.5 : The surrogate recovery was out of control when compared to the control limits. Because all spike recoveries required no qualification, no data require qualification.

**Nitrobenzene-d5** Note 305.5 : The surrogate recovery was out of control when compared to the control limits. Because all spike recoveries required no qualification, no data require qualification.

**CERTIFICATE OF ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Trace Analytical Laboratories, Inc.

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**Terphenyl-d14**

Note 305.5 : The surrogate recovery was out of control when compared to the control limits. Because all spike recoveries required no qualification, no data require qualification.

---

Trace ID: T122885-MS1

**Analysis: EPA 8270E**

---

**2-Fluorobiphenyl**

Note 318 : The surrogate was out of control low when compared to the control limits. The results for the base/neutral compounds must be considered estimated.

---

**Terphenyl-d14**

Note 318 : The surrogate was out of control low when compared to the control limits. The results for the base/neutral compounds must be considered estimated.

---

Trace ID: T122885-MSD1

**Analysis: EPA 8270E**

---

**1,2,4-Trichlorobenzene**

Note 205 : The MS and MSD recoveries were out of control low. The result and reporting limit for this analyte, in the non-spiked version of the sample, must be considered estimated.

---

**1,4-Dichlorobenzene**

Note 209 : The MSD recovery was out of control. Because the MS recovery and the RPD between the MS and the MSD were in control, no data require qualification.

---

**2-Chlorophenol**

Note 209 : The MSD recovery was out of control. Because the MS recovery and the RPD between the MS and the MSD were in control, no data require qualification.

---

**2-Fluorobiphenyl**

Note 318 : The surrogate was out of control low when compared to the control limits. The results for the base/neutral compounds must be considered estimated.

---

**Acenaphthene**

Note 205 : The MS and MSD recoveries were out of control low. The result and reporting limit for this analyte, in the non-spiked version of the sample, must be considered estimated.

---

**N-Nitrosodi-n-propylamine**

Note 207 : The RPD between the MS and the MSD was out of control. Because both spike recoveries were in control, no data require qualification.

---

**Pentachlorophenol**

Note 207 : The RPD between the MS and the MSD was out of control. Because both spike recoveries were in control, no data require qualification.

---

**Phenol**

Note 209 : The MSD recovery was out of control. Because the MS recovery and the RPD between the MS and the MSD were in control, no data require qualification.

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**Pyrene**

Note 205 : The MS and MSD recoveries were out of control low. The result and reporting limit for this analyte, in the non-spiked version of the sample, must be considered estimated.

---

**Terphenyl-d14**

Note 318 : The surrogate was out of control low when compared to the control limits. The results for the base/neutral compounds must be considered estimated.

---

Trace ID: T123209-MS1

**Analysis: EPA 1671**

---

**Diethylamine**

Note 230 : The MS and MSD were out of control high. Because there was no positive result in the non-spiked version of the sample, no data require qualification.

---

Trace ID: T123209-MSD1

**Analysis: EPA 1671**

---

**Diethylamine**

Note 230 : The MS and MSD were out of control high. Because there was no positive result in the non-spiked version of the sample, no data require qualification.

---

**Triethylamine**

Note 207 : The RPD between the MS and the MSD was out of control. Because both spike recoveries were in control, no data require qualification.

---

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**ANALYTICAL RESULTS**

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

Trace ID: 22E0298-01 Matrix: Solid Date Collected: 05/05/22 22:00  
 Sample ID: 21-125-CMBC Date Received: 05/06/22 12:00

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
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**METALS, TOTAL**

Analysis Method: EPA 7471B

Batch: T122723

Mercury	<0.17 mg/kg dry	0.17	1	05/10/22	dc	05/12/22	dc		
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**METALS, TOTAL**

Analysis Method: EPA 6010D

Batch: T122717

Boron	30 mg/kg dry	8.0	1	05/10/22	dc	05/20/22	mrh		
Calcium	15000 mg/kg dry	100	10	05/10/22	dc	05/20/22	mrh		
Lithium	1.9 mg/kg dry	0.94	1	05/10/22	dc	05/18/22	acs	N	

Analysis Method: EPA 6020B

Batch: T122717

Antimony	<1.0 mg/kg dry	1.0	5	05/10/22	dc	05/19/22	ckd		
Arsenic	6.2 mg/kg dry	2.0	5	05/10/22	dc	05/19/22	ckd		
Barium	240 mg/kg dry	4.7	5	05/10/22	dc	05/19/22	ckd		
Beryllium	<0.50 mg/kg dry	0.50	5	05/10/22	dc	05/19/22	ckd		
Cadmium	0.30 mg/kg dry	0.20	5	05/10/22	dc	05/19/22	ckd		
Chromium	20 mg/kg dry	2.0	5	05/10/22	dc	05/19/22	ckd		
Copper	250 mg/kg dry	1.0	5	05/10/22	dc	05/19/22	ckd		
Lead	<10 mg/kg dry	10	5	05/10/22	dc	05/19/22	ckd		
Molybdenum	14 mg/kg dry	1.4	5	05/10/22	dc	05/19/22	ckd	N	
Nickel	30 mg/kg dry	1.0	5	05/10/22	dc	05/19/22	ckd		
Selenium	1.6 mg/kg dry	0.28	5	05/10/22	dc	05/19/22	ckd		
Silver	0.71 mg/kg dry	0.23	5	05/10/22	dc	05/19/22	ckd		
Thallium	<0.50 mg/kg dry	0.50	5	05/10/22	dc	05/19/22	ckd		
Zinc	330 mg/kg dry	2.3	5	05/10/22	dc	05/19/22	ckd		

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### ANALYTICAL RESULTS

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

Trace ID: 22E0298-01 Matrix: Solid Date Collected: 05/05/22 22:00  
 Sample ID: 21-125-CMBC Date Received: 05/06/22 12:00

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
<b>WET CHEMISTRY</b>									
<b>Analysis Method: EPA 1664A</b>									
Batch: [CALC]									
Fats, Oil & Grease (Non-Polar)	<420 mg/kg dry	420	1	05/10/22		05/11/22	kbc	N	
Fats, Oil & Grease (Polar)	580 mg/kg dry	420	1	05/10/22		05/11/22	kbc	N	
<b>Analysis Method: EPA 9071B</b>									
Batch: T122776									
Oil & Grease (HEM)	2600 mg/kg dry	1900	0.997009	05/10/22	kbc	05/11/22	kbc	N	
Total Petroleum Hydrocarbons (SGT-HEM)	<1900 mg/kg dry	1900	0.997009	05/10/22	kbc	05/11/22	kbc	N	
<b>SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS</b>									407
<b>Analysis Method: EPA 8270E</b>									
Batch: T122885									
Bis(2-chloroethyl)ether	<730 ug/kg dry	730	5	05/12/22	kbc	05/16/22	avl		
2-Chlorophenol	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
<b>Phenol</b>	<b>2400 ug/kg dry</b>	<b>1800</b>	<b>5</b>	<b>05/12/22</b>	<b>kbc</b>	<b>05/16/22</b>	<b>avl</b>		
1,3-Dichlorobenzene	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
1,4-Dichlorobenzene	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
1,2-Dichlorobenzene	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
Benzyl alcohol	<15000 ug/kg dry	15000	5	05/12/22	kbc	05/16/22	avl		
Bis(2-chloroisopropyl)ether	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
2-Methylphenol (o-Cresol)	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
<b>3,4-Methylphenol (m,p Cresol)</b>	<b>13000 ug/kg dry</b>	<b>1800</b>	<b>5</b>	<b>05/12/22</b>	<b>kbc</b>	<b>05/16/22</b>	<b>avl</b>		
N-Nitrosodi-n-propylamine	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
Hexachloroethane	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
Nitrobenzene	<950 ug/kg dry	950	5	05/12/22	kbc	05/16/22	avl		
Isophorone	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
2-Nitrophenol	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
2,4-Dimethylphenol	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
Bis(2-chloroethoxy)methane	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
Benzoic acid	<26000 ug/kg dry	26000	5	05/12/22	kbc	05/16/22	avl		
1,2,4-Trichlorobenzene	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
2,4-Dichlorophenol	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
Naphthalene	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		

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### ANALYTICAL RESULTS

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

Trace ID: 22E0298-01 Matrix: Solid Date Collected: 05/05/22 22:00  
 Sample ID: 21-125-CMBC Date Received: 05/06/22 12:00

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
<b>SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS</b>								407	
4-Chloroaniline	<4600 ug/kg dry	4600	5	05/12/22	kbc	05/16/22	avl		
Hexachlorobutadiene	<840 ug/kg dry	840	5	05/12/22	kbc	05/16/22	avl		
4-Chloro-3-methylphenol	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
2-Methylnaphthalene	<4600 ug/kg dry	4600	5	05/12/22	kbc	05/16/22	avl		
Hexachlorocyclopentadiene	<3800 ug/kg dry	3800	5	05/12/22	kbc	05/16/22	avl		
2,4,6-Trichlorophenol	<1500 ug/kg dry	1500	5	05/12/22	kbc	05/16/22	avl		
2,4,5-Trichlorophenol	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
2-Chloronaphthalene	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
2-Nitroaniline	<5000 ug/kg dry	5000	5	05/12/22	kbc	05/16/22	avl		
Dimethyl phthalate	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
Acenaphthylene	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
2,6-Dinitrotoluene	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
3-Nitroaniline	<4600 ug/kg dry	4600	5	05/12/22	kbc	05/16/22	avl		
Acenaphthene	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
Dibenzofuran	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
2,4-Dinitrotoluene	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
4-Nitrophenol	<15000 ug/kg dry	15000	5	05/12/22	kbc	05/16/22	avl		
2,4-Dinitrophenol	<15000 ug/kg dry	15000	5	05/12/22	kbc	05/16/22	avl		
Diethyl phthalate	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
Fluorene	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
4-Chlorophenyl phenyl ether	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
4-Nitroaniline	<5100 ug/kg dry	5100	5	05/12/22	kbc	05/16/22	avl		
4,6-Dinitro-2-methylphenol	<6000 ug/kg dry	6000	5	05/12/22	kbc	05/16/22	avl		
N-Nitrosodiphenylamine	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
4-Bromophenyl phenyl ether	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
Hexachlorobenzene	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
Pentachlorophenol	<7900 ug/kg dry	7900	5	05/12/22	kbc	05/16/22	avl		
Phenanthrene	<730 ug/kg dry	730	5	05/12/22	kbc	05/16/22	avl		
Anthracene	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
Carbazole	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
Di-n-butyl phthalate	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
Fluoranthene	<730 ug/kg dry	730	5	05/12/22	kbc	05/16/22	avl		
Pyrene	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		

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### ANALYTICAL RESULTS

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

Trace ID: 22E0298-01 Matrix: Solid Date Collected: 05/05/22 22:00  
 Sample ID: 21-125-CMBC Date Received: 05/06/22 12:00

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
<b>SEMI-VOLATILE ORGANIC COMPOUNDS BY GC-MS</b>								407	
Butyl benzyl phthalate	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
Benzo (a) anthracene	<730 ug/kg dry	730	5	05/12/22	kbc	05/16/22	avl		
Chrysene	<730 ug/kg dry	730	5	05/12/22	kbc	05/16/22	avl		
3,3'-Dichlorobenzidine	<6600 ug/kg dry	6600	5	05/12/22	kbc	05/16/22	avl		
Bis(2-ethylhexyl)phthalate	<4400 ug/kg dry	4400	5	05/12/22	kbc	05/16/22	avl		
Di-n-octyl phthalate	<1800 ug/kg dry	1800	5	05/12/22	kbc	05/16/22	avl		
Benzo (b) fluoranthene	<730 ug/kg dry	730	5	05/12/22	kbc	05/16/22	avl		
Benzo (k) fluoranthene	<730 ug/kg dry	730	5	05/12/22	kbc	05/16/22	avl		
Benzo (a) pyrene	<730 ug/kg dry	730	5	05/12/22	kbc	05/16/22	avl		
Indeno (1,2,3-cd) pyrene	<730 ug/kg dry	730	5	05/12/22	kbc	05/16/22	avl		
Dibenz (a,h) anthracene	<730 ug/kg dry	730	5	05/12/22	kbc	05/16/22	avl		
Benzo (g,h,i) perylene	<730 ug/kg dry	730	5	05/12/22	kbc	05/16/22	avl		
1,2-Diphenylhydrazine	<3800 ug/kg dry	3800	5	05/12/22	kbc	05/16/22	avl		
Benzidine	0.0 ug/kg dry		5	05/12/22	kbc	05/16/22	avl	N	
N-Nitrosodimethylamine	<6100 ug/kg dry	6100	5	05/12/22	kbc	05/16/22	avl		
<b>Surrogates:</b>									
2-Fluorophenol	71 %	38-81	5	05/12/22	kbc	05/16/22	avl		
Phenol-d5	65 %	32-102	5	05/12/22	kbc	05/16/22	avl		
Nitrobenzene-d5	82 %	36-98	5	05/12/22	kbc	05/16/22	avl		
2-Fluorobiphenyl	54 %	44-105	5	05/12/22	kbc	05/16/22	avl		
2,4,6-Tribromophenol	87 %	38-101	5	05/12/22	kbc	05/16/22	avl		
Terphenyl-d14	53 %	46-109	5	05/12/22	kbc	05/16/22	avl		

### SEMI-VOLATILE COMPOUNDS BY GC

Analysis Method: EPA 1671

Batch: T123209

Diethylamine	<22 mg/kg dry	22	1	05/19/22	nw	05/19/22	nw	N
Triethylamine	<22 mg/kg dry	22	1	05/19/22	nw	05/19/22	nw	N

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### ANALYTICAL RESULTS

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

Trace ID: 22E0298-01 Matrix: Solid Date Collected: 05/05/22 22:00  
 Sample ID: 21-125-CMBC Date Received: 05/06/22 12:00

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
<b>PESTICIDES/PCBS</b>									
<b>Analysis Method: EPA 8082A</b>									
<i>Batch: T122778</i>									
Aroclor-1016	<400 ug/kg dry	400	1	05/10/22	kbc	05/10/22	av		
Aroclor-1221	<1100 ug/kg dry	1100	1	05/10/22	kbc	05/10/22	av		
Aroclor-1232	<330 ug/kg dry	330	1	05/10/22	kbc	05/10/22	av		
Aroclor-1242	<330 ug/kg dry	330	1	05/10/22	kbc	05/10/22	av		
Aroclor-1248	<330 ug/kg dry	330	1	05/10/22	kbc	05/10/22	av		
Aroclor-1254	<330 ug/kg dry	330	1	05/10/22	kbc	05/10/22	av		
Aroclor-1260	<540 ug/kg dry	540	1	05/10/22	kbc	05/10/22	av		
Aroclor-1262	<330 ug/kg dry	330	1	05/10/22	kbc	05/10/22	av	N	
Aroclor-1268	<330 ug/kg dry	330	1	05/10/22	kbc	05/10/22	av	N	
<b>Surrogates:</b>									
Tetrachloro-m-xylene	55 %	40-113	1	05/10/22	kbc	05/10/22	av		
Decachlorobiphenyl	34 %	32-111	1	05/10/22	kbc	05/10/22	av		

### VOLATILE ORGANIC COMPOUNDS BY GC-MS

**Analysis Method: EPA 624.1**  
*Batch: T122922*

<b>Acetone</b>	<b>40000 ug/kg dry</b>	<b>3300</b>	<b>50</b>	<b>05/12/22</b>	<b>nw</b>	<b>05/12/22</b>	<b>nw</b>	<b>N</b>	
Hexane	<3300 ug/kg dry	3300	50	05/12/22	nw	05/12/22	nw	N	
Methylene chloride	<1600 ug/kg dry	1600	50	05/12/22	nw	05/12/22	nw	N	
Tetrahydrofuran	<6600 ug/kg dry	6600	50	05/12/22	nw	05/12/22	nw	N	
Chloroform	<330 ug/kg dry	330	50	05/12/22	nw	05/12/22	nw	N	
Benzene	<330 ug/kg dry	330	50	05/12/22	nw	05/12/22	nw	N	
1,2-Dichloroethane	<330 ug/kg dry	330	50	05/12/22	nw	05/12/22	nw	N	
<b>n-Heptane</b>	<b>2400 ug/kg dry</b>	<b>1600</b>	<b>50</b>	<b>05/12/22</b>	<b>nw</b>	<b>05/12/22</b>	<b>nw</b>	<b>N</b>	
4-Methyl-2-pentanone	<1600 ug/kg dry	1600	50	05/12/22	nw	05/12/22	nw	N	
<b>Toluene</b>	<b>510 ug/kg dry</b>	<b>330</b>	<b>50</b>	<b>05/12/22</b>	<b>nw</b>	<b>05/12/22</b>	<b>nw</b>	<b>N</b>	
Chlorobenzene	<330 ug/kg dry	330	50	05/12/22	nw	05/12/22	nw	N	
m,p-Xylene	<660 ug/kg dry	660	50	05/12/22	nw	05/12/22	nw	N	
o-Xylene	<330 ug/kg dry	330	50	05/12/22	nw	05/12/22	nw	N	
Xylenes, total	<990 ug/kg dry	990	50	05/12/22	nw	05/12/22	nw	N	
1,2-Dichlorobenzene	<330 ug/kg dry	330	50	05/12/22	nw	05/12/22	nw	N	

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### ANALYTICAL RESULTS

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

Trace ID: 22E0298-01 Matrix: Solid Date Collected: 05/05/22 22:00  
 Sample ID: 21-125-CMBC Date Received: 05/06/22 12:00

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
<b>VOLATILE ORGANIC COMPOUNDS BY GC-MS</b>									
n-Butyl Acetate	<1600 ug/kg dry	1600	50	05/12/22	nw	05/12/22	nw	N	
Ethyl acetate	<1600 ug/kg dry	1600	50	05/12/22	nw	05/12/22	nw	N	
Isobutyraldehyde	<1600 ug/kg dry	1600	50	05/12/22	nw	05/12/22	nw	N	
Isopropyl Acetate	<1600 ug/kg dry	1600	50	05/12/22	nw	05/12/22	nw	N	
Isopropyl Ether	<1600 ug/kg dry	1600	50	05/12/22	nw	05/12/22	nw	N	
Methyl Formate	<33000 ug/kg dry	33000	50	05/12/22	nw	05/12/22	nw	N	
n-Amyl Acetate	<1600 ug/kg dry	1600	50	05/12/22	nw	05/12/22	nw	N	
<b>Surrogates:</b>									
1,2-Dichloroethane-d4	87 %	68-133	50	05/12/22	nw	05/12/22	nw	N	
Toluene-d8	107 %	75-120	50	05/12/22	nw	05/12/22	nw	N	
4-Bromofluorobenzene	99 %	69-119	50	05/12/22	nw	05/12/22	nw	N	
1,2-Dichlorobenzene-d4	105 %	72-127	50	05/12/22	nw	05/12/22	nw	N	
<b>Analysis Method: EPA 8260D</b>									
<i>Batch: T122921</i>									
Acrolein	<1100 ug/kg dry	1100	50	05/12/22	nw	05/12/22	nw		
Acrylonitrile	<440 ug/kg dry	440	50	05/12/22	nw	05/12/22	nw		
Benzene	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
Bromodichloromethane	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
Bromoform	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
Bromomethane	<1100 ug/kg dry	1100	50	05/12/22	nw	05/12/22	nw		
Carbon tetrachloride	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
Chlorobenzene	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
Chloroethane	<440 ug/kg dry	440	50	05/12/22	nw	05/12/22	nw		
2-Chloroethylvinyl ether	<5000 ug/kg dry	5000	50	05/12/22	nw	05/12/22	nw		
Chloroform	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
<b>Acetone</b>	<b>27000 ug/kg dry</b>	<b>3300</b>	<b>50</b>	<b>05/12/22</b>	<b>nw</b>	<b>05/12/22</b>	<b>nw</b>	<b>N</b>	
Chloromethane	<250 ug/kg dry	250	50	05/12/22	nw	05/12/22	nw		
Dibromochloromethane	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
1,1-Dichloroethane	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
1,2-Dichloroethane	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
1,1-Dichloroethene	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
trans-1,2-Dichloroethene	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
1,2-Dichloropropane	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		

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### ANALYTICAL RESULTS

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

Trace ID: 22E0298-01 Matrix: Solid Date Collected: 05/05/22 22:00  
 Sample ID: 21-125-CMBC Date Received: 05/06/22 12:00

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
<b>VOLATILE ORGANIC COMPOUNDS BY GC-MS</b>									
Ethylbenzene	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
Methylene chloride	<440 ug/kg dry	440	50	05/12/22	nw	05/12/22	nw		
1,1,2,2-Tetrachloroethane	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
Tetrachloroethene	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
<b>Toluene</b>	<b>340 ug/kg dry</b>	<b>220</b>	<b>50</b>	<b>05/12/22</b>	<b>nw</b>	<b>05/12/22</b>	<b>nw</b>		
1,1,1-Trichloroethane	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
1,1,2-Trichloroethane	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
Trichloroethene	<220 ug/kg dry	220	50	05/12/22	nw	05/12/22	nw		
Vinyl chloride	<180 ug/kg dry	180	50	05/12/22	nw	05/12/22	nw		
Xylenes, total	<660 ug/kg dry	660	50	05/12/22	nw	05/12/22	nw		
1,3-Dichloropropylene	<440 ug/kg dry	440	50	05/12/22	nw	05/12/22	nw	N	
<b>Surrogates:</b>									
1,2-Dichloroethane-d4	87 %	70-133	50	05/12/22	nw	05/12/22	nw		
Toluene-d8	107 %	76-125	50	05/12/22	nw	05/12/22	nw		
4-Bromofluorobenzene	99 %	72-123	50	05/12/22	nw	05/12/22	nw		
1,2-Dichlorobenzene-d4	105 %	71-123	50	05/12/22	nw	05/12/22	nw		

### VOLATILE ORGANIC COMPOUNDS BY GC

Analysis Method: EPA 8015B

Batch: T122746

Methanol	<2.0 mg/kg dry	2.0	1	05/09/22	rg	05/09/22	rg	N	
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### WET CHEMISTRY

Analysis Method: ASTM D2974-07a

Batch: T122736

% Solids	23 % by Wt.	0.10	1	05/09/22	mr	05/10/22	mr	N	
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Analysis Method: EPA 9012B

Batch: T123111

Cyanide (Total)	1.9 mg/kg dry	0.83	1	05/18/22	jma	05/18/22	jma	N	
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Analysis Method: EPA 9066

Batch: T123154

Phenolics	<1.0 mg/kg dry	1.0	1	05/17/22	pn	05/17/22	pn	N	
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### ANALYTICAL RESULTS

Trace Project ID: 22E0298  
Client Project ID: Annual NPDES Sampling

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Trace ID: 22E0298-01                      Matrix: Solid                      Date Collected: 05/05/22 22:00  
Sample ID: 21-125-CMBC                      Date Received: 05/06/22 12:00

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PARAMETERS	RESULTS	UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
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#### WET CHEMISTRY

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**QUALITY CONTROL RESULTS**

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

QC Batch: T122723	Analysis Description: Mercury, Total, EPA 7470/7471
QC Batch Method: EPA 7471B Prep	Analysis Method: EPA 7471B

**METHOD BLANK: T122723-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Mercury	mg/kg wet	<0.050	0.050	

**LABORATORY CONTROL SAMPLE: T122723-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Mercury	mg/kg wet	0.800	0.716	90	80-120	

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

QC Batch: T122717	Analysis Description: Lithium, Total
QC Batch Method: EPA 3051A Microwave Assisted Digestions for Solids	Analysis Method: EPA 6010D

**METHOD BLANK: T122717-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Boron	mg/kg dry	<8.0	8.0	
Calcium	mg/kg dry	<100	100	
Lithium	mg/kg dry	<1.0	1.0	

**LABORATORY CONTROL SAMPLE: T122717-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Boron	mg/kg dry	40.0	37.6	94	80-120	
Calcium	mg/kg dry	400	396	99	80-120	
Lithium	mg/kg dry	40.0	37.1	93	80-120	

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

QC Batch: T122717	Analysis Description: Molybdenum, Total
QC Batch Method: EPA 3051A Microwave Assisted Digestions for Solids	Analysis Method: EPA 6020B

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**METHOD BLANK: T122717-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Silver	mg/kg dry	<0.25	0.25	
Arsenic	mg/kg dry	<2.0	2.0	
Barium	mg/kg dry	<5.0	5.0	
Beryllium	mg/kg dry	<0.50	0.50	
Cadmium	mg/kg dry	<0.20	0.20	
Chromium	mg/kg dry	<2.0	2.0	
Copper	mg/kg dry	<1.0	1.0	
Molybdenum	mg/kg dry	<1.5	1.5	
Nickel	mg/kg dry	<1.0	1.0	
Lead	mg/kg dry	<10	10	
Antimony	mg/kg dry	<1.0	1.0	
Selenium	mg/kg dry	<0.30	0.30	
Thallium	mg/kg dry	<0.50	0.50	
Zinc	mg/kg dry	<2.5	2.5	

**LABORATORY CONTROL SAMPLE: T122717-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Silver	mg/kg dry	5.00	5.43	109	80-120	
Arsenic	mg/kg dry	5.00	4.78	96	80-120	
Barium	mg/kg dry	40.0	43.5	109	80-120	
Beryllium	mg/kg dry	5.00	4.92	98	80-120	
Cadmium	mg/kg dry	40.0	41.9	105	80-120	
Chromium	mg/kg dry	40.0	42.2	105	80-120	
Copper	mg/kg dry	40.0	40.7	102	80-120	
Molybdenum	mg/kg dry	40.0	41.8	105	80-120	
Nickel	mg/kg dry	40.0	41.5	104	80-120	
Lead	mg/kg dry	40.0	41.0	103	80-120	
Antimony	mg/kg dry	5.00	4.89	98	80-120	
Selenium	mg/kg dry	5.00	4.67	93	80-120	
Thallium	mg/kg dry	5.00	5.46	109	80-120	
Zinc	mg/kg dry	40.0	37.7	94	80-120	

Trace Project ID: 22E0298

Client Project ID: Annual NPDES Sampling

QC Batch: [CALC]

Analysis Description: Oil & Grease-Barnes Aero

QC Batch Method:

Analysis Method: EPA 1664A

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Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

QC Batch: T122776	Analysis Description: Oil and Grease, Gravimetric
QC Batch Method: EPA 9071B	Analysis Method: EPA 9071B

**METHOD BLANK: T122776-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Oil & Grease (HEM)	mg/kg wet	<420	420	
Total Petroleum Hydrocarbons (SGT-HEM)	mg/kg wet	<420	420	

**LABORATORY CONTROL SAMPLE: T122776-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Oil & Grease (HEM)	mg/kg wet	10800	10800	100	78-121	
Total Petroleum Hydrocarbons (SGT-HEM)	mg/kg wet	10800	<		0-200	

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

QC Batch: T123209	Analysis Description: Amines
QC Batch Method: EPA 1671	Analysis Method: EPA 1671

**METHOD BLANK: T123209-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Diethylamine	mg/kg wet	<2.5	2.5	
Triethylamine	mg/kg wet	<2.5	2.5	

**LABORATORY CONTROL SAMPLE: T123209-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Diethylamine	mg/kg wet	50.5	64.9	129	0-200	
Triethylamine	mg/kg wet	50.0	60.1	120	0-200	

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T123209-MSD1** Original: 22E0298-01

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Diethylamine	mg/kg dry	0	441	723	709	164	161	0-200	2	200	230
Triethylamine	mg/kg dry	0	437	531	424	122	97	0-200	22	200	207

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

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QC Batch: T122778	Analysis Description: PCBs
QC Batch Method: EPA 3550C Ultrasonic Extraction	Analysis Method: EPA 8082A

**METHOD BLANK: T122778-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Aroclor-1016	ug/kg wet	<330	330	
Aroclor-1221	ug/kg wet	<330	330	
Aroclor-1232	ug/kg wet	<330	330	
Aroclor-1242	ug/kg wet	<330	330	
Aroclor-1248	ug/kg wet	<330	330	
Aroclor-1254	ug/kg wet	<330	330	
Aroclor-1260	ug/kg wet	<330	330	
Aroclor-1262	ug/kg wet	<330	330	
Aroclor-1268	ug/kg wet	<330	330	
Tetrachloro-m-xylene (S)	%	83	40-113	
Decachlorobiphenyl (S)	%	82	32-111	

**LABORATORY CONTROL SAMPLE: T122778-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Aroclor-1016	ug/kg wet	533	422	79	37-132	
Aroclor-1260	ug/kg wet	533	459	86	48-130	
Tetrachloro-m-xylene (S)	%	33.3	33.1	99	40-113	
Decachlorobiphenyl (S)	%	33.3	31.4	94	32-111	

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

QC Batch: T122885	Analysis Description: Semi-volatiles, TCL list
QC Batch Method: EPA 3550C Ultrasonic Extraction	Analysis Method: EPA 8270E

**METHOD BLANK: T122885-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Bis(2-chloroethyl)ether	ug/kg wet	<100	100	
2-Chlorophenol	ug/kg wet	<330	330	
Phenol	ug/kg wet	<330	330	
1,3-Dichlorobenzene	ug/kg wet	<330	330	
1,4-Dichlorobenzene	ug/kg wet	<330	330	
1,2-Dichlorobenzene	ug/kg wet	<330	330	
Benzyl alcohol	ug/kg wet	<3300	3300	
Bis(2-chloroisopropyl)ether	ug/kg wet	<330	330	
2-Methylphenol (o-Cresol)	ug/kg wet	<330	330	
3,4-Methylphenol (m,p Cresol)	ug/kg wet	<330	330	

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**METHOD BLANK: T122885-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
N-Nitrosodi-n-propylamine	ug/kg wet	<330	330	
Hexachloroethane	ug/kg wet	<300	300	
Nitrobenzene	ug/kg wet	<330	330	
Isophorone	ug/kg wet	<330	330	
2-Nitrophenol	ug/kg wet	<330	330	
2,4-Dimethylphenol	ug/kg wet	<330	330	
Bis(2-chloroethoxy)methane	ug/kg wet	<330	330	
Benzoic acid	ug/kg wet	<3300	3300	
1,2,4-Trichlorobenzene	ug/kg wet	<330	330	
2,4-Dichlorophenol	ug/kg wet	<330	330	
Naphthalene	ug/kg wet	<330	330	
4-Chloroaniline	ug/kg wet	<330	330	
Hexachlorobutadiene	ug/kg wet	<50	50	
4-Chloro-3-methylphenol	ug/kg wet	<280	280	
2-Methylnaphthalene	ug/kg wet	<330	330	
Hexachlorocyclopentadiene	ug/kg wet	<330	330	
2,4,6-Trichlorophenol	ug/kg wet	<330	330	
2,4,5-Trichlorophenol	ug/kg wet	<330	330	
2-Chloronaphthalene	ug/kg wet	<330	330	
2-Nitroaniline	ug/kg wet	<830	830	
Dimethyl phthalate	ug/kg wet	<330	330	
Acenaphthylene	ug/kg wet	<330	330	
2,6-Dinitrotoluene	ug/kg wet	<330	330	
3-Nitroaniline	ug/kg wet	<830	830	
Acenaphthene	ug/kg wet	<330	330	
Dibenzofuran	ug/kg wet	<330	330	
2,4-Dinitrotoluene	ug/kg wet	<330	330	
4-Nitrophenol	ug/kg wet	<830	830	
2,4-Dinitrophenol	ug/kg wet	<830	830	
Diethyl phthalate	ug/kg wet	<330	330	
Fluorene	ug/kg wet	<330	330	
4-Chlorophenyl phenyl ether	ug/kg wet	<330	330	
4-Nitroaniline	ug/kg wet	<830	830	
4,6-Dinitro-2-methylphenol	ug/kg wet	<830	830	
N-Nitrosodiphenylamine	ug/kg wet	<330	330	
4-Bromophenyl phenyl ether	ug/kg wet	<330	330	
Hexachlorobenzene	ug/kg wet	<330	330	
Pentachlorophenol	ug/kg wet	<800	800	
Phenanthrene	ug/kg wet	<330	330	
Anthracene	ug/kg wet	<330	330	
Carbazole	ug/kg wet	<330	330	
Di-n-butyl phthalate	ug/kg wet	<330	330	
Fluoranthene	ug/kg wet	<330	330	
Pyrene	ug/kg wet	<330	330	

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**METHOD BLANK: T122885-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Butyl benzyl phthalate	ug/kg wet	<330	330	
Benzo (a) anthracene	ug/kg wet	<330	330	
Chrysene	ug/kg wet	<330	330	
3,3'-Dichlorobenzidine	ug/kg wet	<2000	2000	
Bis(2-ethylhexyl)phthalate	ug/kg wet	<330	330	
Di-n-octyl phthalate	ug/kg wet	<330	330	
Benzo (b) fluoranthene	ug/kg wet	<330	330	
Benzo (k) fluoranthene	ug/kg wet	<330	330	
Benzo (a) pyrene	ug/kg wet	<330	330	
Indeno (1,2,3-cd) pyrene	ug/kg wet	<330	330	
Dibenz (a,h) anthracene	ug/kg wet	<330	330	
Benzo (g,h,i) perylene	ug/kg wet	<330	330	
1,2-Diphenylhydrazine	ug/kg wet	<330	330	
Benzidine	ug/kg wet	0.0		
N-Nitrosodimethylamine	ug/kg wet	<330	330	
2-Fluorophenol (S)	%	76	38-81	
Phenol-d5 (S)	%	76	32-102	
Nitrobenzene-d5 (S)	%	87	36-98	
2-Fluorobiphenyl (S)	%	86	44-105	
<b>2,4,6-Tribromophenol (S)</b>	<b>%</b>	<b>107</b>	<b>38-101</b>	<b>801</b>
<b>Terphenyl-d14 (S)</b>	<b>%</b>	<b>125</b>	<b>46-109</b>	<b>802</b>

**LABORATORY CONTROL SAMPLE: T122885-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
2-Chlorophenol	ug/kg wet	3330	2660	80	49-93	
Phenol	ug/kg wet	3330	2420	73	40-90	
1,4-Dichlorobenzene	ug/kg wet	3330	2640	79	37-106	
N-Nitrosodi-n-propylamine	ug/kg wet	3330	3000	90	51-106	
1,2,4-Trichlorobenzene	ug/kg wet	3330	2680	80	49-100	
4-Chloro-3-methylphenol	ug/kg wet	3330	2850	86	50-96	
Acenaphthene	ug/kg wet	3330	2700	81	52-105	
2,4-Dinitrotoluene	ug/kg wet	3330	3440	103	51-108	
4-Nitrophenol	ug/kg wet	3330	2980	89	22-112	
Pentachlorophenol	ug/kg wet	3330	3120	94	30-111	
Pyrene	ug/kg wet	3330	3110	93	47-114	
<b>2-Fluorophenol (S)</b>	<b>%</b>	<b>3330</b>	<b>2890</b>	<b>87</b>	<b>38-81</b>	<b>305.5</b>
Phenol-d5 (S)	%	3330	3020	91	32-102	
<b>Nitrobenzene-d5 (S)</b>	<b>%</b>	<b>3330</b>	<b>3350</b>	<b>100</b>	<b>36-98</b>	<b>305.5</b>
2-Fluorobiphenyl (S)	%	3370	3140	93	44-105	
<b>2,4,6-Tribromophenol (S)</b>	<b>%</b>	<b>3330</b>	<b>4150</b>	<b>124</b>	<b>38-101</b>	<b>305.5</b>
<b>Terphenyl-d14 (S)</b>	<b>%</b>	<b>3330</b>	<b>4310</b>	<b>129</b>	<b>46-109</b>	<b>305.5</b>

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**MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T122885-MSD1**

Original: **22E0298-01**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
2-Chlorophenol	ug/kg dry	0	14700	7110	6230	48	42	43-93	13	23	209
Phenol	ug/kg dry	2410	14700	7640	6890	35	30	31-91	15	28	209
1,4-Dichlorobenzene	ug/kg dry	0	14700	6640	5350	45	36	43-92	21	33	209
N-Nitrosodi-n-propylamine	ug/kg dry	0	14700	8290	6300	56	43	32-121	27	26	207
1,2,4-Trichlorobenzene	ug/kg dry	0	14700	5740	4860	39	33	43-99	17	33	205
4-Chloro-3-methylphenol	ug/kg dry	0	14700	7430	5920	50	40	36-108	22	25	
Acenaphthene	ug/kg dry	0	14700	5470	4330	37	29	46-111	23	31	205
2,4-Dinitrotoluene	ug/kg dry	0	14700	7830	6360	53	43	18-128	21	28	
4-Nitrophenol	ug/kg dry	0	14700	5590	<15000	38	29	15-125	26	26	
Pentachlorophenol	ug/kg dry	0	14700	4310	<7900	29	21	14-125	33	25	207
Pyrene	ug/kg dry	0	14700	4930	4130	33	28	40-124	17	33	205
2-Fluorophenol (S)	%		14700	6590	5910	45	40	38-81			
Phenol-d5 (S)	%		14700	6430	5280	44	36	32-102			
Nitrobenzene-d5 (S)	%		14700	7280	6250	49	42	36-98			
2-Fluorobiphenyl (S)	%		14900	4530	4020	30	27	44-105			318
2,4,6-Tribromophenol (S)	%		14700	7550	6740	51	46	38-101			
Terphenyl-d14 (S)	%		14700	4450	3810	30	26	46-109			318

Trace Project ID: 22E0298

Client Project ID: Annual NPDES Sampling

QC Batch: T122922

Analysis Description: 624 MACT

QC Batch Method: EPA 5035A Purge-and-Trap for Solids and Wastes

Analysis Method: EPA 624.1

**METHOD BLANK: T122922-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Acetone	ug/kg wet	<500	500	
Hexane	ug/kg wet	<500	500	
Methylene chloride	ug/kg wet	<250	250	
Tetrahydrofuran	ug/kg wet	<1000	1000	
Chloroform	ug/kg wet	<50	50	
Benzene	ug/kg wet	<50	50	
1,2-Dichloroethane	ug/kg wet	<50	50	
n-Heptane	ug/kg wet	<250	250	
4-Methyl-2-pentanone	ug/kg wet	<250	250	
Toluene	ug/kg wet	<50	50	
Chlorobenzene	ug/kg wet	<50	50	
m,p-Xylene	ug/kg wet	<100	100	
o-Xylene	ug/kg wet	<50	50	
Xylenes, total	ug/kg wet	<150	150	

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**METHOD BLANK: T122922-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
1,2-Dichlorobenzene	ug/kg wet	<50	50	
n-Butyl Acetate	ug/kg wet	<250	250	
Ethyl acetate	ug/kg wet	<250	250	
Isobutyraldehyde	ug/kg wet	<250	250	
Isopropyl Acetate	ug/kg wet	<250	250	
Isopropyl Ether	ug/kg wet	<250	250	
Methyl Formate	ug/kg wet	<5000	5000	
n-Amyl Acetate	ug/kg wet	<250	250	
1,2-Dichloroethane-d4 (S)	%	87	68-133	
Toluene-d8 (S)	%	108	75-120	
4-Bromofluorobenzene (S)	%	108	69-119	
1,2-Dichlorobenzene-d4 (S)	%	107	72-127	

**LABORATORY CONTROL SAMPLE: T122922-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Benzene	ug/kg wet	2500	2500	100	80-120	
Toluene	ug/kg wet	2500	2540	102	80-120	
Chlorobenzene	ug/kg wet	2500	2430	97	80-120	
1,2-Dichloroethane-d4 (S)	%	30.0	26.3	88	68-133	
Toluene-d8 (S)	%	30.0	32.2	107	75-120	
4-Bromofluorobenzene (S)	%	30.0	29.4	98	69-119	
1,2-Dichlorobenzene-d4 (S)	%	30.0	29.2	97	72-127	

Trace Project ID: 22E0298

Client Project ID: Annual NPDES Sampling

QC Batch: T122746	Analysis Description: Alcohols
QC Batch Method: EPA 8015B	Analysis Method: EPA 8015B

**METHOD BLANK: T122746-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Methanol	mg/kg wet	<1.0	1.0	

**LABORATORY CONTROL SAMPLE: T122746-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Methanol	mg/kg wet	99.4	105	105	70-130	

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**MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T122746-MSD1**

Original: **22E0298-01**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Methanol	mg/kg dry	0	883	988	1040	112	118	70-130	5	20	

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

QC Batch: T122921	Analysis Description: EPA 8260
QC Batch Method: EPA 5035A Purge-and-Trap for Solids and Wastes	Analysis Method: EPA 8260D

**METHOD BLANK: T122921-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Acrolein	ug/kg wet	<250	250	
Acrylonitrile	ug/kg wet	<100	100	
Benzene	ug/kg wet	<50	50	
Bromodichloromethane	ug/kg wet	<100	100	
Bromoform	ug/kg wet	<100	100	
Bromomethane	ug/kg wet	<250	250	
Carbon tetrachloride	ug/kg wet	<50	50	
Chlorobenzene	ug/kg wet	<50	50	
Chloroethane	ug/kg wet	<250	250	
2-Chloroethylvinyl ether	ug/kg wet	<5000	5000	
Chloroform	ug/kg wet	<50	50	
Acetone	ug/kg wet	<750	750	
Chloromethane	ug/kg wet	<250	250	
Dibromochloromethane	ug/kg wet	<100	100	
1,1-Dichloroethane	ug/kg wet	<50	50	
1,2-Dichloroethane	ug/kg wet	<50	50	
1,1-Dichloroethene	ug/kg wet	<50	50	
trans-1,2-Dichloroethene	ug/kg wet	<50	50	
1,2-Dichloropropane	ug/kg wet	<50	50	
Ethylbenzene	ug/kg wet	<50	50	
Methylene chloride	ug/kg wet	<250	250	
1,1,1,2-Tetrachloroethane	ug/kg wet	<50	50	
Tetrachloroethene	ug/kg wet	<50	50	
Toluene	ug/kg wet	<100	100	
1,1,1-Trichloroethane	ug/kg wet	<50	50	
1,1,2-Trichloroethane	ug/kg wet	<50	50	
Trichloroethene	ug/kg wet	<50	50	
Vinyl chloride	ug/kg wet	<40	40	
Xylenes, total	ug/kg wet	<150	150	
1,3-Dichloropropylene	ug/kg wet	<100	100	
1,2-Dichloroethane-d4 (S)	%	87	70-133	
Toluene-d8 (S)	%	108	76-125	
4-Bromofluorobenzene (S)	%	108	72-123	

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**METHOD BLANK: T122921-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
1,2-Dichlorobenzene-d4 (S)	%	107	71-123	

**LABORATORY CONTROL SAMPLE: T122921-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Benzene	ug/kg wet	2500	2530	101	80-120	
Chlorobenzene	ug/kg wet	2500	2430	97	80-120	
Acetone	ug/kg wet	2500	3280	131	39-160	
1,1-Dichloroethene	ug/kg wet	2500	3310	132	64-156	
Toluene	ug/kg wet	2500	2580	103	80-120	
Trichloroethene	ug/kg wet	2500	2360	94	69-133	
1,2-Dichloroethane-d4 (S)	%	30.0	26.2	87	70-133	
Toluene-d8 (S)	%	30.0	32.2	107	76-125	
4-Bromofluorobenzene (S)	%	30.0	28.9	96	72-123	
1,2-Dichlorobenzene-d4 (S)	%	30.0	28.6	95	71-123	

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

QC Batch: T122736  
 QC Batch Method: % Solids

Analysis Description: Solids, Dry Weight  
 Analysis Method: ASTM D2974-07a

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

QC Batch: T123111  
 QC Batch Method: EPA 9012B

Analysis Description: Cyanide, Total  
 Analysis Method: EPA 9012B

**METHOD BLANK: T123111-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Cyanide (Total)	mg/kg wet	<0.20	0.20	

**LABORATORY CONTROL SAMPLE: T123111-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Cyanide (Total)	mg/kg wet	1.00	1.05	105	81-111	

**LABORATORY CONTROL SAMPLE: T123111-BS2**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Cyanide (Total)	mg/kg wet	4.00	4.25	106	81-111	

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**SAMPLE DUPLICATE: T123111-DUP1** Original: 22E0298-01

Parameter	Units	Original Result	DUP Result	RPD	Max RPD	Notes
Cyanide (Total)	mg/kg dry	1.95	1.83	6	20	

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T123111-MSD1** Original: 22E0298-01

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Cyanide (Total)	mg/kg dry	1.95	4.32	4.67	4.63	63	62	61-126	2	22	

Trace Project ID: 22E0298  
 Client Project ID: Annual NPDES Sampling

QC Batch: T123154	Analysis Description: Phenols, Total
QC Batch Method: EPA 9066	Analysis Method: EPA 9066

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### CHAIN-OF-CUSTODY RECORD

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Phone 231.773.5998  
Fax 888.979.4469  
www.trace-labs.com

Trace ID No.  
22 E 02018

<b>Report Results To:</b>		<b>Bill To:</b>	
Company Name: City of Kalamazoo		PO #:	
Report To: Malissa Drzick		Contact Name:	
Mailing Address: 1415 N. Harrison St.		Billing Address (if different):	
City, State, Zip Code: Kalamazoo, MI 49007		City, State, Zip Code:	
Office Phone: (269) 337-8392	Cell Phone: (269) 370-4444	Phone Number:	
Email Address: drzickm@kalamazoo.city.org		Billing Email Address:	

**Trace Use:**

Logged By: <span style="font-family: cursive;">JD</span>
Checked By: <span style="font-family: cursive;">MB</span>
Soil Volatiles Preserved (circle if applicable):
MeOH    Low Level    Lab
Sampling Time:

**Turnaround Requirements:**

Standard     48 Hour\*  
 4 Day\*         24 Hour\*  
 3 Day\*

*\* Requires Prior Approval*

**Matrix Key:**

S = Soil / Solid    WI = Wipes  
 W = Water         LW = Liquid Waste  
 SL = Sludge        A = Air  
 OI = Oil             D = Drinking Water

#### Analysis Requested

Project Name: Annual NPDES sampling - May 2022		Sampled By: KWRP													
Trace No.	Date Collected	Time Collected	Client Sample ID	Metals Field Filtered (Y/N)	Matrix	Number of Containers	Preservation					analyze per contracts #21, #22, #23	Remarks	Possible Health Hazards?	
							Cool	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH				Other
1	5/5/22	6am, 2pm, 10pm	22-125-CMBC		S	2	X						X	Belt Press - 1st, 2nd & 3rd shifts	
*co-mingled belt press cakes collected from 1st, 2nd + 3rd shifts on 5/5/22 & composited on 5/6/22															
Water System ID: WW-City of Kalamazoo															
Location ID: CMBC															

Please Sign	Released By		Received By		Date	Time	Released By		Received By		Date	Time
	<span style="font-family: cursive;">[Signature]</span>		<span style="font-family: cursive;">[Signature]</span>		5/6/22	1200	<span style="font-family: cursive;">[Signature]</span>		<span style="font-family: cursive;">[Signature]</span>		5/6/22	11:57
	1)											
	3)											

In executing this Chain of Custody, the client acknowledges the terms as set forth at [www.trace-labs.com/terms-of-agreement](http://www.trace-labs.com/terms-of-agreement).

Check this box if you would not like your samples analyzed if received outside of the conditions outlined in the Trace Sample Acceptance Policy at [www.trace-labs.com/downloads](http://www.trace-labs.com/downloads).

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**22E0298**

Kalamazoo, City of  
 Project Manager: Jon Mink

**Sample Log In Checklist**

Date: 5/10/22	Original Observation	Corrected Temperature	IR-9 (CF: +0.6°C)	IR-10 (CF: +0.4°C)	20812743 (CF: -0.2°C)	Temp Blank	Client Sample
Time: 11:37							
Logged by: KB							
Package Description: Cooler							
Package Temp °C	-1.6	-1.0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Representative Sample Temp °C	2.0	1.8	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**Sample Receipt**

- Yes No
- Received on ice or other coolant
- Ice still present upon receipt
- Custody seals present
- Trace Courier  Client Drop-off
- Yes  No Custody seals intact (if applicable)
- UPS  Fed Ex  US Mail  Other

**Sample Condition**

- Yes No N/A
- All sample containers arrived unbroken and labeled
- Sufficient sample to run requested analyses
- Correct chemical preservative added to samples
- Samples preserved at Trace
- Chemical preservation verified, check EMD pH test strip used (if applicable)
- pH 0-2.5 (Lot: HC046681)  pH 11.0-13.0 (Lot: HC022540)  Other
- Air bubbles absent from VOAs

**Chain of Custody (COC)**

- Yes No
- All bottle labels agree with COC
- COC filled out properly
- COC signed by client

**Notes:**

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October 30, 2021

Ms. Shannan Deater  
Kalamazoo, City of  
1415 N. Harrison St.  
Kalamazoo, MI 49007

RE: Trace Project 21J0658  
Client Project TCLP - Annual Sample

Dear Ms. Deater:

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

For clients that require NELAP Accreditation, Trace certifies that these test results meet all requirements of the NELAP Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAP at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.773.5998 or by email at [tbrewer@trace-labs.com](mailto:tbrewer@trace-labs.com).

Sincerely,

A handwritten signature in black ink that reads "Timothy W. Brewer".

Tim Brewer  
Project Manager  
Enclosures



NJDEP Accreditation No. MI008

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### SAMPLE SUMMARY

Trace Project ID: 21J0658  
Client Project ID: TCLP - Annual Sample

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
21J0658-01	10-14-21-Plant	Solid	sh	10/13/21	10/15/21 13:40
21J0658-02	10-14-21-Vactor Sand	Solid	sh	10/13/21	10/15/21 13:40
21J0658-03	10-14-21-Cake	Solid	sh	10/13/21	10/15/21 13:40

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**AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT**

**DEFINITIONS**

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the laboratory is not accredited by NELAP for this compound
NA	Indicates that the compound is not available.

NOTE: Samples for volatiles that have been extracted with a water miscible solvent were corrected for the total volume of the solvent/water mixture.  
Solid matrices Method Blanks are at 100% solids as such results are the same wet or dry.

**DATA QUALIFIERS**

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Trace ID: 21J0658-01

**Analysis: EPA 8270D**

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<b>2-Fluorophenol</b>	Note 301 : A dilution of 1:5 or greater was required on this sample. Consequently, surrogate recoveries are not available.
<b>Phenol-d5</b>	Note 301 : A dilution of 1:5 or greater was required on this sample. Consequently, surrogate recoveries are not available.

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Trace ID: 21J0658-02

**Analysis: EPA 8270D**

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<b>2-Fluorophenol</b>	Note 301 : A dilution of 1:5 or greater was required on this sample. Consequently, surrogate recoveries are not available.
<b>Phenol-d5</b>	Note 301 : A dilution of 1:5 or greater was required on this sample. Consequently, surrogate recoveries are not available.

---

Trace ID: 21J0658-03

**Analysis: EPA 8270D**

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<b>2-Fluorophenol</b>	Note 301 : A dilution of 1:5 or greater was required on this sample. Consequently, surrogate recoveries are not available.
<b>Phenol-d5</b>	Note 301 : A dilution of 1:5 or greater was required on this sample. Consequently, surrogate recoveries are not available.

---

Trace ID: T115843-BLK1

**Analysis: EPA 8270D**

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**Phenol-d5**

Note 801 : One of the acid surrogate recoveries was outside the control limits. Since the other two acid surrogates were within the control limits, no data require qualification.

---

Trace ID: T115844-BLK2

***Analysis: EPA 8081B***

**Decachlorobiphenyl**

Note 304 : The primary surrogate (decachlorobiphenyl) recovery for this sample fell outside the laboratory established control limits. The secondary surrogate (tetrachloro-m-xylene) recovery was in control. No data require qualification.

---

Trace ID: T115939-MSD1

***Analysis: EPA 8260C***

**Benzene**

Note 207 : The RPD between the MS and the MSD was out of control. Because both spike recoveries were in control, no data require qualification.

**Carbon tetrachloride**

Note 207 : The RPD between the MS and the MSD was out of control. Because both spike recoveries were in control, no data require qualification.

**Tetrachloroethene**

Note 207 : The RPD between the MS and the MSD was out of control. Because both spike recoveries were in control, no data require qualification.

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### ANALYTICAL RESULTS

Trace Project ID: 21J0658  
 Client Project ID: TCLP - Annual Sample

Trace ID: 21J0658-01 Matrix: Solid Date Collected: 10/13/21  
 Sample ID: 10-14-21-Plant Date Received: 10/15/21 13:40

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
<b>METALS, TCLP</b>									
<b>Analysis Method: EPA 6010D</b>									
<i>Batch: T115721</i>									
Arsenic	<0.30 mg/L	0.30	1	10/19/21	dc	10/19/21	mrh		5.0
Barium	<1.0 mg/L	1.0	1	10/19/21	dc	10/19/21	mrh		100
Cadmium	<0.10 mg/L	0.10	1	10/19/21	dc	10/19/21	mrh		1.0
Chromium	<0.50 mg/L	0.50	1	10/19/21	dc	10/19/21	mrh		5.0
Lead	<0.50 mg/L	0.50	1	10/19/21	dc	10/19/21	mrh		5.0
Selenium	<0.60 mg/L	0.60	1	10/19/21	dc	10/19/21	mrh		1.0
Silver	<0.10 mg/L	0.10	1	10/19/21	dc	10/19/21	mrh		5.0
<b>Analysis Method: EPA 7470A</b>									
<i>Batch: T115733</i>									
Mercury	<0.010 mg/L	0.010	1	10/19/21	mrh	10/19/21	dc		0.20
<b>SEMI-VOLATILE ORGANIC COMPOUNDS, TCLP</b>									
<b>Analysis Method: EPA 8270D</b>									
<i>Batch: T115843</i>									
Pyridine	<0.20 mg/L	0.20	5	10/21/21	kbc	10/21/21	avl		5.0
2-Methylphenol (o-Cresol)	<0.025 mg/L	0.025	5	10/21/21	kbc	10/21/21	avl		200
3,4-Methylphenol (m,p Cresol)	<0.025 mg/L	0.025	5	10/21/21	kbc	10/21/21	avl		200
Hexachloroethane	<0.025 mg/L	0.025	5	10/21/21	kbc	10/21/21	avl		3.0
Nitrobenzene	<0.010 mg/L	0.010	5	10/21/21	kbc	10/21/21	avl		2.0
Hexachlorobutadiene	<0.025 mg/L	0.025	5	10/21/21	kbc	10/21/21	avl		0.50
2,4,6-Trichlorophenol	<0.010 mg/L	0.010	5	10/21/21	kbc	10/21/21	avl		2.0
2,4,5-Trichlorophenol	<0.025 mg/L	0.025	5	10/21/21	kbc	10/21/21	avl		400
2,4-Dinitrotoluene	<0.025 mg/L	0.025	5	10/21/21	kbc	10/21/21	avl		0.13
Hexachlorobenzene	<0.025 mg/L	0.025	5	10/21/21	kbc	10/21/21	avl		0.13
Pentachlorophenol	<0.050 mg/L	0.050	5	10/21/21	kbc	10/21/21	avl		100
<b>Surrogates:</b>									
2-Fluorophenol	* %	20-53	5	10/21/21	kbc	10/21/21	avl	301	
Phenol-d5	* %	11-40	5	10/21/21	kbc	10/21/21	avl	301	
Nitrobenzene-d5	56 %	36-103	5	10/21/21	kbc	10/21/21	avl		
2-Fluorobiphenyl	65 %	36-119	5	10/21/21	kbc	10/21/21	avl		
2,4,6-Tribromophenol	65 %	30-105	5	10/21/21	kbc	10/21/21	avl		

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### ANALYTICAL RESULTS

Trace Project ID: 21J0658  
 Client Project ID: TCLP - Annual Sample

Trace ID: 21J0658-01 Matrix: Solid Date Collected: 10/13/21  
 Sample ID: 10-14-21-Plant Date Received: 10/15/21 13:40

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
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#### SEMI-VOLATILE ORGANIC COMPOUNDS, TCLP

Terphenyl-d14	76 %	37-109	5	10/21/21	kbc	10/21/21	avl		
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#### PESTICIDES/PCBS, TCLP

Analysis Method: EPA 8081B

Batch: T115844

Chlordane	<0.00050 mg/L	0.00050	1	10/21/21	kbc	10/25/21	av		0.030
Endrin	<0.00010 mg/L	0.00010	1	10/21/21	kbc	10/25/21	av		0.020
gamma-BHC (Lindane)	<0.00010 mg/L	0.00010	1	10/21/21	kbc	10/25/21	av		0.40
Heptachlor	<0.00010 mg/L	0.00010	1	10/21/21	kbc	10/25/21	av		0.0080
Heptachlor epoxide	<0.00010 mg/L	0.00010	1	10/21/21	kbc	10/25/21	av		0.0080
Methoxychlor	<0.00010 mg/L	0.00010	1	10/21/21	kbc	10/25/21	av		10
Toxaphene	<0.0050 mg/L	0.0050	1	10/21/21	kbc	10/25/21	av		0.50

#### Surrogates:

Tetrachloro-m-xylene	51 %	38-94	1	10/21/21	kbc	10/25/21	av	N	
Decachlorobiphenyl	41 %	40-93	1	10/21/21	kbc	10/25/21	av	N	

#### HERBICIDES, TCLP

Analysis Method: EPA 8151A

Batch: T115845

2,4-D	<0.50 mg/L	0.50	1	10/21/21	kbc	10/22/21	tml		10
2,4,5-TP (Silvex)	<0.25 mg/L	0.25	1	10/21/21	kbc	10/22/21	tml		1.0

#### Surrogates:

2,4-Dichlorophenylacetic acid	102 %	39-125	1	10/21/21	kbc	10/22/21	tml	N	
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#### VOLATILE ORGANIC COMPOUNDS, TCLP

Analysis Method: EPA 8260C

Batch: T115939

Vinyl chloride	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.20
1,1-Dichloroethene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.70
2-Butanone	<0.50 mg/L	0.50	100	10/23/21	nw	10/23/21	nw		200
Chloroform	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		6.0
Carbon tetrachloride	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.50

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### ANALYTICAL RESULTS

Trace Project ID: 21J0658  
 Client Project ID: TCLP - Annual Sample

Trace ID: 21J0658-01 Matrix: Solid Date Collected: 10/13/21  
 Sample ID: 10-14-21-Plant Date Received: 10/15/21 13:40

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
<b>VOLATILE ORGANIC COMPOUNDS, TCLP</b>									
Benzene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.50
1,2-Dichloroethane	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.50
Trichloroethene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.50
Tetrachloroethene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.70
Chlorobenzene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		100
1,4-Dichlorobenzene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		7.5
<b>Surrogates:</b>									
1,2-Dichloroethane-d4	98 %	68-133	100	10/23/21	nw	10/23/21	nw		
Toluene-d8	103 %	75-120	100	10/23/21	nw	10/23/21	nw		
4-Bromofluorobenzene	106 %	69-119	100	10/23/21	nw	10/23/21	nw		
1,2-Dichlorobenzene-d4	106 %	72-127	100	10/23/21	nw	10/23/21	nw		
<b>WET CHEMISTRY</b>									
<b>Analysis Method: ASTM D2974-07a</b>									
<i>Batch: T115810</i>									
% Solids	29 % by Wt.	0.10	1	10/20/21	mr	10/20/21	mr	N	
<b>Analysis Method: EPA 1010B</b>									
<i>Batch: T116109</i>									
Flashpoint	> 200 °F	1.00	1	10/27/21	jma	10/27/21	jma		
<b>Analysis Method: EPA 9045D</b>									
<i>Batch: T115674</i>									
Corrosivity-pH	6.45		1	10/18/21	mr	10/18/21	mr		
pH measured at temperature (°C)	20.6		1	10/18/21	mr	10/18/21	mr	N	
<b>Analysis Method: EPA Chapter 7.3</b>									
<i>Batch: T115848</i>									
Cyanide, Reactive	<0.50 mg/kg dry	0.50	1	10/21/21	jma	10/22/21	jma		
Sulfide, Reactive	18 mg/kg dry	6.4	1	10/21/21	jma	10/22/21	jma	N	

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### ANALYTICAL RESULTS

Trace Project ID: 21J0658  
 Client Project ID: TCLP - Annual Sample

Trace ID: 21J0658-02 Matrix: Solid Date Collected: 10/13/21  
 Sample ID: 10-14-21-Vector Sand Date Received: 10/15/21 13:40

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
<b>METALS, TCLP</b>									
<b>Analysis Method: EPA 6010D</b>									
<i>Batch: T115721</i>									
Arsenic	<0.30 mg/L	0.30	1	10/19/21	dc	10/19/21	mrh		5.0
Barium	<1.0 mg/L	1.0	1	10/19/21	dc	10/19/21	mrh		100
Cadmium	<0.10 mg/L	0.10	1	10/19/21	dc	10/19/21	mrh		1.0
Chromium	<0.50 mg/L	0.50	1	10/19/21	dc	10/19/21	mrh		5.0
Lead	<0.50 mg/L	0.50	1	10/19/21	dc	10/19/21	mrh		5.0
Selenium	<0.60 mg/L	0.60	1	10/19/21	dc	10/19/21	mrh		1.0
Silver	<0.10 mg/L	0.10	1	10/19/21	dc	10/19/21	mrh		5.0
<b>Analysis Method: EPA 7470A</b>									
<i>Batch: T115733</i>									
Mercury	<0.010 mg/L	0.010	1	10/19/21	mrh	10/19/21	dc		0.20
<b>SEMI-VOLATILE ORGANIC COMPOUNDS, TCLP</b>									
<b>Analysis Method: EPA 8270D</b>									
<i>Batch: T115843</i>									
Pyridine	<0.20 mg/L	0.20	5	10/21/21	kbc	10/22/21	avl		5.0
2-Methylphenol (o-Cresol)	<0.025 mg/L	0.025	5	10/21/21	kbc	10/22/21	avl		200
3,4-Methylphenol (m,p Cresol)	<0.025 mg/L	0.025	5	10/21/21	kbc	10/22/21	avl		200
Hexachloroethane	<0.025 mg/L	0.025	5	10/21/21	kbc	10/22/21	avl		3.0
Nitrobenzene	<0.010 mg/L	0.010	5	10/21/21	kbc	10/22/21	avl		2.0
Hexachlorobutadiene	<0.025 mg/L	0.025	5	10/21/21	kbc	10/22/21	avl		0.50
2,4,6-Trichlorophenol	<0.010 mg/L	0.010	5	10/21/21	kbc	10/22/21	avl		2.0
2,4,5-Trichlorophenol	<0.025 mg/L	0.025	5	10/21/21	kbc	10/22/21	avl		400
2,4-Dinitrotoluene	<0.025 mg/L	0.025	5	10/21/21	kbc	10/22/21	avl		0.13
Hexachlorobenzene	<0.025 mg/L	0.025	5	10/21/21	kbc	10/22/21	avl		0.13
Pentachlorophenol	<0.050 mg/L	0.050	5	10/21/21	kbc	10/22/21	avl		100
<b>Surrogates:</b>									
2-Fluorophenol	* %	20-53	5	10/21/21	kbc	10/22/21	avl	301	
Phenol-d5	* %	11-40	5	10/21/21	kbc	10/22/21	avl	301	
Nitrobenzene-d5	47 %	36-103	5	10/21/21	kbc	10/22/21	avl		
2-Fluorobiphenyl	55 %	36-119	5	10/21/21	kbc	10/22/21	avl		
2,4,6-Tribromophenol	56 %	30-105	5	10/21/21	kbc	10/22/21	avl		

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**ANALYTICAL RESULTS**

Trace Project ID: 21J0658  
 Client Project ID: TCLP - Annual Sample

Trace ID: 21J0658-02 Matrix: Solid Date Collected: 10/13/21  
 Sample ID: 10-14-21-Vector Sand Date Received: 10/15/21 13:40

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
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**SEMI-VOLATILE ORGANIC COMPOUNDS, TCLP**

Terphenyl-d14	73 %	37-109	5	10/21/21	kbc	10/22/21	avl		
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**PESTICIDES/PCBS, TCLP**

Analysis Method: EPA 8081B

Batch: T115844

Chlordane	<0.00050 mg/L	0.00050	1	10/21/21	kbc	10/25/21	av		0.030
Endrin	<0.00010 mg/L	0.00010	1	10/21/21	kbc	10/25/21	av		0.020
gamma-BHC (Lindane)	<0.00010 mg/L	0.00010	1	10/21/21	kbc	10/25/21	av		0.40
Heptachlor	<0.00010 mg/L	0.00010	1	10/21/21	kbc	10/25/21	av		0.0080
Heptachlor epoxide	<0.00010 mg/L	0.00010	1	10/21/21	kbc	10/25/21	av		0.0080
Methoxychlor	<0.00010 mg/L	0.00010	1	10/21/21	kbc	10/25/21	av		10
Toxaphene	<0.0050 mg/L	0.0050	1	10/21/21	kbc	10/25/21	av		0.50

**Surrogates:**

Tetrachloro-m-xylene	65 %	38-94	1	10/21/21	kbc	10/25/21	av	N	
Decachlorobiphenyl	48 %	40-93	1	10/21/21	kbc	10/25/21	av	N	

**HERBICIDES, TCLP**

Analysis Method: EPA 8151A

Batch: T115845

2,4-D	<0.50 mg/L	0.50	1	10/21/21	kbc	10/22/21	tml		10
2,4,5-TP (Silvex)	<0.25 mg/L	0.25	1	10/21/21	kbc	10/22/21	tml		1.0

**Surrogates:**

2,4-Dichlorophenylacetic acid	103 %	39-125	1	10/21/21	kbc	10/22/21	tml	N	
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**VOLATILE ORGANIC COMPOUNDS, TCLP**

Analysis Method: EPA 8260C

Batch: T115939

Vinyl chloride	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.20
1,1-Dichloroethene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.70
2-Butanone	<0.50 mg/L	0.50	100	10/23/21	nw	10/23/21	nw		200
Chloroform	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		6.0
Carbon tetrachloride	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.50

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### ANALYTICAL RESULTS

Trace Project ID: 21J0658  
 Client Project ID: TCLP - Annual Sample

Trace ID: 21J0658-02 Matrix: Solid Date Collected: 10/13/21  
 Sample ID: 10-14-21-Vector Sand Date Received: 10/15/21 13:40

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
<b>VOLATILE ORGANIC COMPOUNDS, TCLP</b>									
Benzene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.50
1,2-Dichloroethane	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.50
Trichloroethene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.50
Tetrachloroethene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.70
Chlorobenzene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		100
1,4-Dichlorobenzene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		7.5
<b>Surrogates:</b>									
1,2-Dichloroethane-d4	97 %	68-133	100	10/23/21	nw	10/23/21	nw		
Toluene-d8	102 %	75-120	100	10/23/21	nw	10/23/21	nw		
4-Bromofluorobenzene	106 %	69-119	100	10/23/21	nw	10/23/21	nw		
1,2-Dichlorobenzene-d4	107 %	72-127	100	10/23/21	nw	10/23/21	nw		
<b>WET CHEMISTRY</b>									
<b>Analysis Method: ASTM D2974-07a</b>									
<i>Batch: T115810</i>									
% Solids	91 % by Wt.	0.10	1	10/20/21	mr	10/20/21	mr	N	
<b>Analysis Method: EPA 1010B</b>									
<i>Batch: T116109</i>									
Flashpoint	> 200 °F	1.00	1	10/27/21	jma	10/27/21	jma		
<b>Analysis Method: EPA 9045D</b>									
<i>Batch: T115674</i>									
Corrosivity-pH	8.26		1	10/18/21	mr	10/18/21	mr		
pH measured at temperature (°C)	20.7		1	10/18/21	mr	10/18/21	mr	N	
<b>Analysis Method: EPA Chapter 7.3</b>									
<i>Batch: T115848</i>									
Cyanide, Reactive	<0.50 mg/kg dry	0.50	1	10/21/21	jma	10/22/21	jma		
Sulfide, Reactive	<5.0 mg/kg dry	5.0	1	10/21/21	jma	10/22/21	jma	N	

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### ANALYTICAL RESULTS

Trace Project ID: 21J0658  
 Client Project ID: TCLP - Annual Sample

Trace ID: 21J0658-03 Matrix: Solid Date Collected: 10/13/21  
 Sample ID: 10-14-21-Cake Date Received: 10/15/21 13:40

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
<b>METALS, TCLP</b>									
<b>Analysis Method: EPA 6010D</b>									
<i>Batch: T115721</i>									
Arsenic	<0.30 mg/L	0.30	1	10/19/21	dc	10/19/21	mrh		5.0
Barium	<1.0 mg/L	1.0	1	10/19/21	dc	10/19/21	mrh		100
Cadmium	<0.10 mg/L	0.10	1	10/19/21	dc	10/19/21	mrh		1.0
Chromium	<0.50 mg/L	0.50	1	10/19/21	dc	10/19/21	mrh		5.0
Lead	<0.50 mg/L	0.50	1	10/19/21	dc	10/19/21	mrh		5.0
Selenium	<0.60 mg/L	0.60	1	10/19/21	dc	10/19/21	mrh		1.0
Silver	<0.10 mg/L	0.10	1	10/19/21	dc	10/19/21	mrh		5.0
<b>Analysis Method: EPA 7470A</b>									
<i>Batch: T115733</i>									
Mercury	<0.010 mg/L	0.010	1	10/19/21	mrh	10/19/21	dc		0.20
<b>SEMI-VOLATILE ORGANIC COMPOUNDS, TCLP</b>									
<b>Analysis Method: EPA 8270D</b>									
<i>Batch: T115843</i>									
Pyridine	<0.20 mg/L	0.20	5	10/21/21	kbc	10/22/21	avl		5.0
2-Methylphenol (o-Cresol)	<0.025 mg/L	0.025	5	10/21/21	kbc	10/22/21	avl		200
<b>3,4-Methylphenol (m,p Cresol)</b>	<b>0.032 mg/L</b>	<b>0.025</b>	<b>5</b>	<b>10/21/21</b>	<b>kbc</b>	<b>10/22/21</b>	<b>avl</b>		<b>200</b>
Hexachloroethane	<0.025 mg/L	0.025	5	10/21/21	kbc	10/22/21	avl		3.0
Nitrobenzene	<0.010 mg/L	0.010	5	10/21/21	kbc	10/22/21	avl		2.0
Hexachlorobutadiene	<0.025 mg/L	0.025	5	10/21/21	kbc	10/22/21	avl		0.50
2,4,6-Trichlorophenol	<0.010 mg/L	0.010	5	10/21/21	kbc	10/22/21	avl		2.0
2,4,5-Trichlorophenol	<0.025 mg/L	0.025	5	10/21/21	kbc	10/22/21	avl		400
2,4-Dinitrotoluene	<0.025 mg/L	0.025	5	10/21/21	kbc	10/22/21	avl		0.13
Hexachlorobenzene	<0.025 mg/L	0.025	5	10/21/21	kbc	10/22/21	avl		0.13
Pentachlorophenol	<0.050 mg/L	0.050	5	10/21/21	kbc	10/22/21	avl		100
<b>Surrogates:</b>									
2-Fluorophenol	* %	20-53	5	10/21/21	kbc	10/22/21	avl	301	
Phenol-d5	* %	11-40	5	10/21/21	kbc	10/22/21	avl	301	
Nitrobenzene-d5	55 %	36-103	5	10/21/21	kbc	10/22/21	avl		
2-Fluorobiphenyl	63 %	36-119	5	10/21/21	kbc	10/22/21	avl		
2,4,6-Tribromophenol	58 %	30-105	5	10/21/21	kbc	10/22/21	avl		

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### ANALYTICAL RESULTS

Trace Project ID: 21J0658  
 Client Project ID: TCLP - Annual Sample

Trace ID: 21J0658-03 Matrix: Solid Date Collected: 10/13/21  
 Sample ID: 10-14-21-Cake Date Received: 10/15/21 13:40

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
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#### SEMI-VOLATILE ORGANIC COMPOUNDS, TCLP

Terphenyl-d14	68 %	37-109	5	10/21/21	kbc	10/22/21	avl		
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#### PESTICIDES/PCBS, TCLP

Analysis Method: EPA 8081B

Batch: T115844

Chlordane	<0.00050 mg/L	0.00050	1	10/21/21	kbc	10/25/21	av		0.030
Endrin	<0.00010 mg/L	0.00010	1	10/21/21	kbc	10/25/21	av		0.020
gamma-BHC (Lindane)	<0.00010 mg/L	0.00010	1	10/21/21	kbc	10/25/21	av		0.40
Heptachlor	<0.00010 mg/L	0.00010	1	10/21/21	kbc	10/25/21	av		0.0080
Heptachlor epoxide	<0.00010 mg/L	0.00010	1	10/21/21	kbc	10/25/21	av		0.0080
Methoxychlor	<0.00010 mg/L	0.00010	1	10/21/21	kbc	10/25/21	av		10
Toxaphene	<0.0050 mg/L	0.0050	1	10/21/21	kbc	10/25/21	av		0.50

#### Surrogates:

Tetrachloro-m-xylene	50 %	38-94	1	10/21/21	kbc	10/25/21	av	N	
Decachlorobiphenyl	42 %	40-93	1	10/21/21	kbc	10/25/21	av	N	

#### HERBICIDES, TCLP

Analysis Method: EPA 8151A

Batch: T115845

2,4-D	<0.50 mg/L	0.50	1	10/21/21	kbc	10/22/21	tml		10
2,4,5-TP (Silvex)	<0.25 mg/L	0.25	1	10/21/21	kbc	10/22/21	tml		1.0

#### Surrogates:

2,4-Dichlorophenylacetic acid	97 %	39-125	1	10/21/21	kbc	10/22/21	tml	N	
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#### VOLATILE ORGANIC COMPOUNDS, TCLP

Analysis Method: EPA 8260C

Batch: T115939

Vinyl chloride	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.20
1,1-Dichloroethene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.70
2-Butanone	<0.50 mg/L	0.50	100	10/23/21	nw	10/23/21	nw		200
Chloroform	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		6.0
Carbon tetrachloride	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.50

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### ANALYTICAL RESULTS

Trace Project ID: 21J0658  
 Client Project ID: TCLP - Annual Sample

Trace ID: 21J0658-03 Matrix: Solid Date Collected: 10/13/21  
 Sample ID: 10-14-21-Cake Date Received: 10/15/21 13:40

PARAMETERS	RESULTS UNITS	RDL	DILUTION	PREPARED	BY	ANALYZED	BY	NOTES	MCL
<b>VOLATILE ORGANIC COMPOUNDS, TCLP</b>									
Benzene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.50
1,2-Dichloroethane	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.50
Trichloroethene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.50
Tetrachloroethene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		0.70
Chlorobenzene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		100
1,4-Dichlorobenzene	<0.10 mg/L	0.10	100	10/23/21	nw	10/23/21	nw		7.5
<b>Surrogates:</b>									
1,2-Dichloroethane-d4	97 %	68-133	100	10/23/21	nw	10/23/21	nw		
Toluene-d8	103 %	75-120	100	10/23/21	nw	10/23/21	nw		
4-Bromofluorobenzene	107 %	69-119	100	10/23/21	nw	10/23/21	nw		
1,2-Dichlorobenzene-d4	107 %	72-127	100	10/23/21	nw	10/23/21	nw		
<b>WET CHEMISTRY</b>									
<b>Analysis Method: ASTM D2974-07a</b>									
<i>Batch: T115810</i>									
% Solids	19 % by Wt.	0.10	1	10/20/21	mr	10/20/21	mr	N	
<b>Analysis Method: EPA 1010B</b>									
<i>Batch: T116109</i>									
Flashpoint	> 200 °F	1.00	1	10/27/21	jma	10/27/21	jma		
<b>Analysis Method: EPA 9045D</b>									
<i>Batch: T115674</i>									
Corrosivity-pH	6.21		1	10/18/21	mr	10/18/21	mr		
pH measured at temperature (°C)	20.6		1	10/18/21	mr	10/18/21	mr	N	
<b>Analysis Method: EPA Chapter 7.3</b>									
<i>Batch: T115848</i>									
Cyanide, Reactive	<0.52 mg/kg dry	0.52	1	10/21/21	jma	10/22/21	jma		
Sulfide, Reactive	54 mg/kg dry	10	1	10/21/21	jma	10/22/21	jma	N	

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**QUALITY CONTROL RESULTS**

Trace Project ID: 21J0658  
 Client Project ID: TCLP - Annual Sample

QC Batch: T115841	Analysis Description: TCLP Extraction, SVOC
QC Batch Method: Leaching procedures	Analysis Method: EPA 1311

Trace Project ID: 21J0658  
 Client Project ID: TCLP - Annual Sample

QC Batch: T115721	Analysis Description: Chromium, TCLP
QC Batch Method: EPA 3015 Microwave Assisted Digestions for Liquids	Analysis Method: EPA 6010D

**METHOD BLANK: T115721-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Silver	mg/L	<0.10	0.10	
Arsenic	mg/L	<0.30	0.30	
Barium	mg/L	<1.0	1.0	
Cadmium	mg/L	<0.10	0.10	
Chromium	mg/L	<0.50	0.50	
Lead	mg/L	<0.50	0.50	
Selenium	mg/L	<0.60	0.60	

**METHOD BLANK: T115721-BLK2**

Parameter	Units	Blank Result	Reporting Limit	Notes
Silver	mg/L	<0.10	0.10	
Arsenic	mg/L	<0.30	0.30	
Barium	mg/L	<1.0	1.0	
Cadmium	mg/L	<0.10	0.10	
Chromium	mg/L	<0.50	0.50	
Lead	mg/L	<0.50	0.50	
Selenium	mg/L	<0.60	0.60	

**LABORATORY CONTROL SAMPLE: T115721-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Silver	mg/L	0.0278	<0.10	94	80-120	
Arsenic	mg/L	0.0556	<0.30	104	80-120	
Barium	mg/L	0.889	<1.0	102	80-120	
Cadmium	mg/L	0.0278	<0.10	100	80-120	
Chromium	mg/L	0.0278	<0.50	101	80-120	
Lead	mg/L	0.0556	<0.50	96	80-120	

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**LABORATORY CONTROL SAMPLE: T115721-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Selenium	mg/L	0.0556	<0.60	84	80-120	

Trace Project ID: 21J0658  
 Client Project ID: TCLP - Annual Sample

QC Batch: T115733	Analysis Description: Mercury, TCLP
QC Batch Method: EPA 7470A Prep	Analysis Method: EPA 7470A

**METHOD BLANK: T115733-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Mercury	mg/L	<0.010	0.010	

**METHOD BLANK: T115733-BLK2**

Parameter	Units	Blank Result	Reporting Limit	Notes
Mercury	mg/L	<0.010	0.010	

**LABORATORY CONTROL SAMPLE: T115733-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Mercury	mg/L	0.00200	<0.010	91	80-120	

Trace Project ID: 21J0658  
 Client Project ID: TCLP - Annual Sample

QC Batch: T115712	Analysis Description: TCLP Extraction, Metals
QC Batch Method: Leaching procedures	Analysis Method: EPA 1311

Trace Project ID: 21J0658  
 Client Project ID: TCLP - Annual Sample

QC Batch: T115842	Analysis Description: TCLP ZHE, Volatiles
QC Batch Method: Leaching procedures	Analysis Method: EPA 1311

Trace Project ID: 21J0658  
 Client Project ID: TCLP - Annual Sample

QC Batch: T115844	Analysis Description: TCLP Pesticides
QC Batch Method: EPA 3510C Separatory Funnel Liquid-Liquid Extr.	Analysis Method: EPA 8081B

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**METHOD BLANK: T115844-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Chlordane	mg/L	<0.000050	0.000050	
Endrin	mg/L	<0.000010	0.000010	
gamma-BHC (Lindane)	mg/L	<0.000010	0.000010	
Heptachlor	mg/L	<0.000010	0.000010	
Heptachlor epoxide	mg/L	<0.000010	0.000010	
Methoxychlor	mg/L	<0.000010	0.000010	
Toxaphene	mg/L	<0.00050	0.00050	
Tetrachloro-m-xylene (S)	%	54	38-94	
Decachlorobiphenyl (S)	%	51	40-93	

**METHOD BLANK: T115844-BLK2**

Parameter	Units	Blank Result	Reporting Limit	Notes
Chlordane	mg/L	<0.00050	0.00050	
Endrin	mg/L	<0.00010	0.00010	
gamma-BHC (Lindane)	mg/L	<0.00010	0.00010	
Heptachlor	mg/L	<0.00010	0.00010	
Heptachlor epoxide	mg/L	<0.00010	0.00010	
Methoxychlor	mg/L	<0.00010	0.00010	
Toxaphene	mg/L	<0.0050	0.0050	
Tetrachloro-m-xylene (S)	%	51	38-94	
<b>Decachlorobiphenyl (S)</b>	%	<b>38</b>	<b>40-93</b>	<b>304</b>

**LABORATORY CONTROL SAMPLE: T115844-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Endrin	mg/L	0.0000500	0.0000318	64	42-145	
gamma-BHC (Lindane)	mg/L	0.0000500	0.0000284	57	43-124	
Heptachlor	mg/L	0.0000500	0.0000261	52	21-142	
Heptachlor epoxide	mg/L	0.0000500	0.0000259	52	40-132	
Methoxychlor	mg/L	0.0000500	0.0000271	54	47-137	
Tetrachloro-m-xylene (S)	%	0.000100	0.0000564	56	38-94	
Decachlorobiphenyl (S)	%	0.000100	0.0000482	48	40-93	

Trace Project ID: 21J0658

Client Project ID: TCLP - Annual Sample

QC Batch: T115845

Analysis Description: TCLP Herbicides

QC Batch Method: EPA 8151

Analysis Method: EPA 8151A

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**METHOD BLANK: T115845-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
2,4-D	mg/L	<0.0020	0.0020	
2,4,5-TP (Silvex)	mg/L	<0.0010	0.0010	
2,4-Dichlorophenylacetic acid (S)	%	96	39-125	

**METHOD BLANK: T115845-BLK2**

Parameter	Units	Blank Result	Reporting Limit	Notes
2,4-D	mg/L	<0.50	0.50	
2,4,5-TP (Silvex)	mg/L	<0.25	0.25	
2,4-Dichlorophenylacetic acid (S)	%	98	39-125	

**LABORATORY CONTROL SAMPLE: T115845-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
2,4-D	mg/L	0.0100	0.0101	101	40-129	
2,4,5-TP (Silvex)	mg/L	0.0100	0.0103	103	56-121	
2,4-Dichlorophenylacetic acid (S)	%	0.00800	0.00917	115	39-125	

Trace Project ID: 21J0658

Client Project ID: TCLP - Annual Sample

QC Batch: T115843

Analysis Description: TCLP Semi-Volatiles

QC Batch Method: EPA 3510C Separatory Funnel  
 Liquid-Liquid Extr.

Analysis Method: EPA 8270D

**METHOD BLANK: T115843-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Pyridine	mg/L	<0.0040	0.0040	
2-Methylphenol (o-Cresol)	mg/L	<0.00050	0.00050	
3,4-Methylphenol (m,p Cresol)	mg/L	<0.00050	0.00050	
Hexachloroethane	mg/L	<0.00050	0.00050	
Nitrobenzene	mg/L	<0.00020	0.00020	
Hexachlorobutadiene	mg/L	<0.00050	0.00050	
2,4,6-Trichlorophenol	mg/L	<0.00020	0.00020	
2,4,5-Trichlorophenol	mg/L	<0.00050	0.00050	
2,4-Dinitrotoluene	mg/L	<0.00050	0.00050	
Hexachlorobenzene	mg/L	<0.00050	0.00050	
Pentachlorophenol	mg/L	<0.0010	0.0010	
2-Fluorophenol (S)	%	21	20-53	
<b>Phenol-d5 (S)</b>	%	<b>10</b>	<b>11-40</b>	<b>801</b>
Nitrobenzene-d5 (S)	%	49	36-103	

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**METHOD BLANK: T115843-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
2-Fluorobiphenyl (S)	%	50	36-119	
2,4,6-Tribromophenol (S)	%	58	30-105	
Terphenyl-d14 (S)	%	56	37-109	

**METHOD BLANK: T115843-BLK2**

Parameter	Units	Blank Result	Reporting Limit	Notes
Pyridine	mg/L	<0.040	0.040	
2-Methylphenol (o-Cresol)	mg/L	<0.0050	0.0050	
3,4-Methylphenol (m,p Cresol)	mg/L	<0.0050	0.0050	
Hexachloroethane	mg/L	<0.0050	0.0050	
Nitrobenzene	mg/L	<0.0020	0.0020	
Hexachlorobutadiene	mg/L	<0.0050	0.0050	
2,4,6-Trichlorophenol	mg/L	<0.0020	0.0020	
2,4,5-Trichlorophenol	mg/L	<0.0050	0.0050	
2,4-Dinitrotoluene	mg/L	<0.0050	0.0050	
Hexachlorobenzene	mg/L	<0.0050	0.0050	
Pentachlorophenol	mg/L	<0.010	0.010	
2-Fluorophenol (S)	%	25	20-53	
Phenol-d5 (S)	%	12	11-40	
Nitrobenzene-d5 (S)	%	69	36-103	
2-Fluorobiphenyl (S)	%	73	36-119	
2,4,6-Tribromophenol (S)	%	75	30-105	
Terphenyl-d14 (S)	%	79	37-109	

**LABORATORY CONTROL SAMPLE: T115843-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
2,4-Dinitrotoluene	mg/L	0.0505	0.0374	74	39-105	
Pentachlorophenol	mg/L	0.101	0.0575	57	38-102	
2-Fluorophenol (S)	%	0.100	0.0309	31	20-53	
Phenol-d5 (S)	%	0.100	0.0192	19	11-40	
Nitrobenzene-d5 (S)	%	0.100	0.0770	77	36-103	
2-Fluorobiphenyl (S)	%	0.101	0.0698	69	36-119	
2,4,6-Tribromophenol (S)	%	0.100	0.0879	88	30-105	
Terphenyl-d14 (S)	%	0.100	0.0748	75	37-109	

Trace Project ID: 21J0658

Client Project ID: TCLP - Annual Sample

QC Batch: T115939

Analysis Description: TCLP Volatiles

QC Batch Method: EPA 5035A Purge-and-Trap for Solids and Wastes

Analysis Method: EPA 8260C

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**METHOD BLANK: T115939-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Vinyl chloride	mg/L	<0.10	0.10	
1,1-Dichloroethene	mg/L	<0.10	0.10	
2-Butanone	mg/L	<0.50	0.50	
Chloroform	mg/L	<0.10	0.10	
Carbon tetrachloride	mg/L	<0.10	0.10	
Benzene	mg/L	<0.10	0.10	
1,2-Dichloroethane	mg/L	<0.10	0.10	
Trichloroethene	mg/L	<0.10	0.10	
Tetrachloroethene	mg/L	<0.10	0.10	
Chlorobenzene	mg/L	<0.10	0.10	
1,4-Dichlorobenzene	mg/L	<0.10	0.10	
1,2-Dichloroethane-d4 (S)	%	99	68-133	
Toluene-d8 (S)	%	104	75-120	
4-Bromofluorobenzene (S)	%	109	69-119	
1,2-Dichlorobenzene-d4 (S)	%	109	72-127	

**LABORATORY CONTROL SAMPLE: T115939-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Vinyl chloride	mg/L	2.00	2.49	124	47-184	
1,1-Dichloroethene	mg/L	2.00	2.22	111	64-156	
2-Butanone	mg/L	2.00	2.06	103	70-130	
Chloroform	mg/L	2.00	2.20	110	80-120	
Carbon tetrachloride	mg/L	2.00	2.22	111	79-141	
Benzene	mg/L	2.00	2.09	104	80-120	
1,2-Dichloroethane	mg/L	2.00	2.10	105	80-120	
Trichloroethene	mg/L	2.00	2.18	109	69-133	
Tetrachloroethene	mg/L	2.00	2.32	116	70-120	
Chlorobenzene	mg/L	2.00	2.26	113	80-120	
1,4-Dichlorobenzene	mg/L	2.00	2.30	115	80-120	
1,2-Dichloroethane-d4 (S)	%	30.0	29.4	98	68-133	
Toluene-d8 (S)	%	30.0	30.8	103	75-120	
4-Bromofluorobenzene (S)	%	30.0	32.4	108	69-119	
1,2-Dichlorobenzene-d4 (S)	%	30.0	32.4	108	72-127	

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T115939-MSD1**

Original: 21J0658-03

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Vinyl chloride	mg/L	0	2.00	2.31	2.03	115	101	60-153	13	13	
1,1-Dichloroethene	mg/L	0	2.00	2.12	1.84	106	92	60-146	14	15	
2-Butanone	mg/L	0.166	2.00	1.91	1.78	87	80	60-140	8	23	

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**MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T115939-MSD1**

Original: **21J0658-03**

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Chloroform	mg/L	0	2.00	2.03	1.82	102	91	68-124	11	13	
<b>Carbon tetrachloride</b>	<b>mg/L</b>	<b>0</b>	<b>2.00</b>	<b>2.11</b>	<b>1.85</b>	<b>105</b>	<b>93</b>	<b>68-125</b>	<b>13</b>	<b>12</b>	<b>207</b>
<b>Benzene</b>	<b>mg/L</b>	<b>0</b>	<b>2.00</b>	<b>1.98</b>	<b>1.74</b>	<b>99</b>	<b>87</b>	<b>78-114</b>	<b>13</b>	<b>11</b>	<b>207</b>
1,2-Dichloroethane	mg/L	0	2.00	1.94	1.75	97	87	63-132	10	11	
Trichloroethene	mg/L	0	2.00	2.10	1.81	105	91	70-117	14	14	
<b>Tetrachloroethene</b>	<b>mg/L</b>	<b>0</b>	<b>2.00</b>	<b>2.18</b>	<b>1.89</b>	<b>109</b>	<b>95</b>	<b>57-126</b>	<b>14</b>	<b>12</b>	<b>207</b>
Chlorobenzene	mg/L	0	2.00	2.08	1.86	104	93	75-116	11	12	
1,4-Dichlorobenzene	mg/L	0	2.00	1.92	1.77	96	88	69-118	8	18	
1,2-Dichloroethane-d4 (S)	%		30.0	29.3	29.3	98	98	68-133			
Toluene-d8 (S)	%		30.0	30.8	31.0	102	104	75-120			
4-Bromofluorobenzene (S)	%		30.0	32.2	32.2	107	107	69-119			
1,2-Dichlorobenzene-d4 (S)	%		30.0	30.7	30.6	102	102	72-127			

Trace Project ID: 21J0658

Client Project ID: TCLP - Annual Sample

QC Batch: T115810

Analysis Description: Solids, Dry Weight

QC Batch Method: % Solids

Analysis Method: ASTM D2974-07a

Trace Project ID: 21J0658

Client Project ID: TCLP - Annual Sample

QC Batch: T116109

Analysis Description: Flash Point (Ignitability)

QC Batch Method: EPA 1010B

Analysis Method: EPA 1010B

**LABORATORY CONTROL SAMPLE: T116109-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Flashpoint	°F	127	125	99	95-105	

Trace Project ID: 21J0658

Client Project ID: TCLP - Annual Sample

QC Batch: T115674

Analysis Description: Corrosivity (pH for waste), 9040/9045

QC Batch Method: EPA 9045D

Analysis Method: EPA 9045D

Trace Project ID: 21J0658

Client Project ID: TCLP - Annual Sample

QC Batch: T115848

Analysis Description: Reactivity - Sulfide

QC Batch Method: EPA Chapter 7.3

Analysis Method: EPA Chapter 7.3

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**METHOD BLANK: T115848-BLK1**

Parameter	Units	Blank Result	Reporting Limit	Notes
Cyanide, Reactive	mg/kg wet	<0.50	0.50	
Sulfide, Reactive	mg/kg wet	<5.0	5.0	

**LABORATORY CONTROL SAMPLE: T115848-BS1**

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limit	Notes
Cyanide, Reactive	mg/kg wet	5.00	4.54	91	79-116	
Sulfide, Reactive	mg/kg wet	25.0	24.2	97	74-126	

**SAMPLE DUPLICATE: T115848-DUP1** Original: 21J0658-02

Parameter	Units	Original Result	DUP Result	RPD	Max RPD	Notes
Cyanide, Reactive	mg/kg dry	0	<0.50		200	

**MATRIX SPIKE / MATRIX SPIKE DUPLICATE: T115848-MSD1** Original: 21J0658-02

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Notes
Sulfide, Reactive	mg/kg dry	0.842	10.3	10.0	9.85	89	88	52-115	2	27	

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Page 1 of 1

Trace ID No.  
 2150658

Report Results To:

Company Name: City of Kalamazoo  
 Report To: Shannan Deater  
 Mailing Address: 1415 N. Harrison  
 City, State, Zip Code: Kalamazoo, MI, 49004  
 Office Phone: 269-337-8667 Cell Phone: 269-377-4753  
 Email Address: deaters@kalamazoocty.org  
 Billing Email Address:

Trace Use:

Logged By: *SK*  
 Checked By: *SK*  
 Soil Volatiles Preserved (circle if applicable):  
 MeOH Low Level Lab  
 Sampling Time:

Turnaround Requirements:

Standard, 5-10 Days  
 3 Day\*  
 1 Day\*  
 Matrix Key:  
 S = Soil / Solid  
 W = Water  
 SL = Sludge  
 OI = Oil  
 WI = Wipes  
 LW = Liquid Waste  
 A = Air  
 D = Drinking Water

Project Name: TCLP-Annual Sample

Sampled By: Steve Helmer

Trace No.	Date Collected	Time Collected	Client Sample ID	Metals Field Filtered (Y / N)	Matrix	Number of Containers	Preservation						Complete TCLP with herbicides and pesticides	Analysis Requested	Remarks	Possible Health Hazards?
							Cool	HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	Other				
1	10/13/2021		10-14-21-Plant	N	S	1									1 500 mL (plant wide)	
2	10/13/2021		10-14-21-Vactor Sand	N	S	1									1 500 mL (vactor sand)	
3	10/13/2021		10-14-21-Cake	N	S	1									1 500 mL (dirt press cake)	

Please Sign

Released By: *[Signature]* Received By: *[Signature]* Date: 10/14/21 Time: 12:17PM  
 Released By: *[Signature]* Received By: *[Signature]* Date: 10/15/21 Time: 6:42AM  
 Released By: *[Signature]* Received By: *[Signature]* Date: 10/15/21 Time: 13:05

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**21J0658**

Kalamazoo, City of  
 Project Manager: Tim Brewer

**Sample Log In Checklist**

Date: 10-15-21	Original Observation	Corrected Temperature	IR-9 (CF: +0.1°C)	IR-10 (CF: +0.1°C)	20812743 (CF: -0.4°C)	Temp Blank	Client Sample
Time: 16:42							
Logged by: DH							
Package Description: Cooler							
Package Temp °C	-0.5	-0.4		✓			
Representative Sample Temp °C	1.3	1.4		✓			✓

**Sample Receipt**

- Yes No
- Received on ice or other coolant
  - Ice still present upon receipt
  - Custody seals present
  - Yes  No Custody seals intact (if applicable)
  - Trace Courier  Client Drop-off
  - UPS  Fed Ex  US Mail  Other

**Sample Condition**

- Yes No N/A
- All sample containers arrived unbroken and labeled
  - Sufficient sample to run requested analyses
  - Correct chemical preservative added to samples
  - Samples preserved at Trace
  - Chemical preservation verified, check EMD pH test strip used (if applicable)
    - pH 0-2.5 (Lot: HC029115)
    - pH 11.0-13.0 (Lot: HC022540)
    - Other
  - Air bubbles absent from VOAs

**Chain of Custody (COC)**

- Yes No
- All bottle labels agree with COC
  - COC filled out properly
  - COC signed by client

**Notes:**

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**CERTIFICATE OF ANALYSIS**

This report shall not be reproduced, except in full, without the written consent of Trace Analytical Laboratories, Inc.

Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444-2673



231-773-5998 Phone  
888-979-4469 Fax  
www.trace-labs.com

December 17, 2021

Ms. Shannan Deater  
Kalamazoo, City of  
1415 N. Harrison St.  
Kalamazoo, MI 49007

RE: Trace Project 21K0777  
Client Project TENORM Sample

Dear Ms. Deater:

Enclosed are your analytical results. The results of this report relate only to the samples listed in the body of this report.

All reports were examined through Trace's validation process to ensure that requirements for quality and completeness were satisfied. All reported analytical results were obtained in accordance with the methods referenced on the reports. Every practical effort was made to meet the reporting limit specifications for this work, however, some results may have raised reporting limits to correct for percent solids.

The results were obtained from .

For clients that require NELAC Accreditation, Trace certifies that these test results meet all requirements of the NELAC Standard, except for those analytes with a "N" notation. These analytes have not been evaluated by NELAC at Trace's discretion and will not be reported unless requested by client.

If you have questions concerning this report, please contact me at 231.773.5998 or by email at [tbrewer@trace-labs.com](mailto:tbrewer@trace-labs.com).

Sincerely,

A handwritten signature in black ink that reads "Timothy W. Brewer".

Tim Brewer  
Project Manager

Enclosures



NJDEP Accreditation No. MI008

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### SAMPLE SUMMARY

Trace Project ID: 21K0777  
Client Project ID: TENORM Sample

Trace ID	Sample ID	Matrix	Collected By	Date Collected	Date Received
21K0777-01	11-17-21-Cake and Vactor Spoils-Blend	Solid	BJ	11/17/21 12:15	11/17/21 13:45

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## AN EXPLANATION OF TERMS AND SYMBOLS WHICH MAY OCCUR IN THIS REPORT

### DEFINITIONS

LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MS	Matrix Spike
MSD	Matrix Spike Duplicate
RPD	Relative Percent Difference
DUP	Matrix Duplicate
RDL	Reporting Detection Limit
MCL	Maximum Contamination Limit
TIC	Tentatively Identified Compound
<, ND or U	Indicates the compound was analyzed for but not detected
*	Indicates a result that exceeds its associated MCL or Surrogate control limits
N	Indicates that the compound has not been evaluated by NELAC
NA	Indicates that the compound is not available.



Summit Environmental Technologies, Inc.  
3310 Win St.  
Cuyahoga Falls, Ohio 44223  
TEL: (330) 253-8211 FAX: (330) 253-4489  
Website: <http://www.settek.com>

December 17, 2021

Jon Mink  
Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444  
TEL: (231) 773-5998  
FAX: (231) 773-6537

RE: 21K0777

Dear Jon Mink:

Order No.: 21111591

Summit Environmental Technologies, Inc. received 2 sample(s) on 11/24/2021 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative.

Quality control data is within laboratory defined or method specified acceptance limits except where noted.

If you have any questions regarding these tests results, please feel free to call the laboratory.

Sincerely,

Holly Florea  
Project Manager  
3310 Win St.  
Cuyahoga Falls, Ohio 44223

Arkansas 88-0735, California 2943, Colorado, Connecticut PH-0108, Florida NELAC E87688, Idaho OH00923, Illinois 200061, Indiana C-OH-13, Kansas E-10347, Kentucky (Underground Storage Tank) 3, Kentucky 90146, Maryland 339, Michigan 9988, Minnesota 1780279, Nevada OH009232020-1, New Hampshire 2996, New Jersey OH006, New York 11777, North Carolina 39705 and 631, North Dakota R-201, Ohio DW, Ohio VAP CL0052, Oklahoma 2019-155, Oregon OH200001, Pennsylvania 011, Rhode Island LA000317, South Carolina 92016001, Texas T104704466-19-16, Utah OH009232020-12, Virginia VELAP 10381, West Virginia 9957C





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## Case Narrative

WO#: 2111591  
Date: 12/17/2021

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**CLIENT:** Trace Analytical Laboratories, Inc.  
**Project:** 21K0777

---

### WorkOrder Narrative:

This report in its entirety consists of the following documents: Cover Letter, Case Narrative, Analytical Results, QC Summary Report, Applicable Accreditation Information, Chain-of-Custody, Cooler Receipt Form, and other applicable forms as necessary. All documents contain the Summit Environmental Technologies, Inc., Work Order Number assigned to this report.

Summit Environmental Technologies, Inc., holds the accreditations/certifications listed at the bottom of the cover letter that may or may not pertain to this report. Please refer to the "Accreditation Program Analytes Report" for accredited analytes list.

The information contained in this analytical report is the sole property of Summit Environmental Technologies, Inc. and that of the customer. It cannot be reproduced in any form without the consent of Summit Environmental Technologies, Inc. or the customer for which this report was issued. The results contained in this report are only representative of the samples received. Conditions can vary at different times and at different sampling conditions. Summit Environmental Technologies, Inc. is not responsible for use or interpretation of the data included herein.

All results for Solid Samples are reported on an "as received" or "wet weight" basis unless indicated as "dry weight" using the "-dry" designation on the reporting units.

This report is believed to meet all of the requirements of the accrediting agency, where applicable. Any comments or problems with the analytical events associated with this report are noted below.

### WorkOrder Comments:

2111591: State required accreditation not specified; results may not be reported as certified data.

---

Original



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Cuyahoga Falls, Ohio 44223  
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Website: <http://www.settek.com>

**Workorder**  
**Sample Summary**  
WO#: 21111591  
17-Dec-21

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**CLIENT:** Trace Analytical Laboratories, Inc.  
**Project:** 21K0777

---

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
21111591-001	21K0777-01 No Incubation		11/17/2021 12:15:00 PM	11/24/2021 9:55:00 AM	Solid
21111591-002	21K0777-01 Full Incubation		11/17/2021 12:15:00 PM	11/24/2021 9:55:00 AM	Solid



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# Analytical Report

(consolidated)

WO#: 21111591

Date Reported: 12/17/2021

**CLIENT:** Trace Analytical Laboratories, Inc.

**Collection Date:** 11/17/2021 12:15:00 PM

**Project:** 21K0777

**Lab ID:** 21111591-001

**Matrix:** SOLID

**Client Sample ID:** 21K0777-01 No Incubation

Analyses	Result	PQL	Qual	Units	Uncertainty	DF	Date Analyzed
<b>GAMMA SPEC (901.1M)</b>				<b>E901.1M</b>		Analyst: <b>CXS</b>	
Lead-210(Pb-210)	3.84	0.779		pCi/g-dry	± 2.06	1	11/26/2021 4:17:00 PM
Radium-226	3.17	0.612		pCi/g-dry	± 1.62	1	11/26/2021 4:17:00 PM
Radium-228	1.17	0.0556		pCi/g-dry	± 0.390	1	11/26/2021 4:17:00 PM

**NOTES:**

Ra-226 analyzed without full incubation per client request.

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
	ND	Not Detected	PL	Permit Limit
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	W	Sample container temperature is out of limit as specified at testcode		

Original



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# Analytical Report

(consolidated)  
 WO#: 21111591  
 Date Reported: 12/17/2021

**CLIENT:** Trace Analytical Laboratories, Inc. **Collection Date:** 11/17/2021 12:15:00 PM  
**Project:** 21K0777  
**Lab ID:** 21111591-002 **Matrix:** SOLID  
**Client Sample ID:** 21K0777-01 Full Incubation

Analyses	Result	PQL	Qual	Units	Uncertainty	DF	Date Analyzed
<b>GAMMA SPEC (901.1M)</b>				<b>E901.1M</b>		Analyst: <b>CXS</b>	
Radium-226	0.334	0.0556		pCi/g-dry	± 0.180	1	12/17/2021 10:41:00 A

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
ND	Not Detected	PL	Permit Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode		

Original



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# Analytical Report

(consolidated)

WO#: 21111591

Date Reported: 12/17/2021

**CLIENT:** Trace Analytical Laboratories, Inc. **Collection Date:** 11/17/2021 12:15:00 PM  
**Project:** 21K0777  
**Lab ID:** 21111591-001 **Matrix:** SOLID  
**Client Sample ID:** 21K0777-01 No Incubation

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>PERCENT MOISTURE BY SM2540MOD</b>				<b>A2540B</b>		Analyst: <b>DHC</b>
Percent Moisture	82.0	0.100	%	1	11/26/2021 2:45:00 PM	

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
ND	Not Detected	PL	Permit Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode		

Original



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# Analytical Report

(consolidated)

WO#: 21111591

Date Reported: 12/17/2021

**CLIENT:** Trace Analytical Laboratories, Inc. **Collection Date:** 11/17/2021 12:15:00 PM  
**Project:** 21K0777  
**Lab ID:** 21111591-002 **Matrix:** SOLID  
**Client Sample ID:** 21K0777-01 Full Incubation

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
<b>PERCENT MOISTURE BY SM2540MOD</b>				<b>A2540B</b>		Analyst: DHC
Percent Moisture	82.0	0.100	%	1	11/26/2021 2:45:00 PM	

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
ND	Not Detected	PL	Permit Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
W	Sample container temperature is out of limit as specified at testcode		

Original



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# QC SUMMARY REPORT

WO#: 21111591  
 17-Dec-21

**Client:** Trace Analytical Laboratories, Inc.  
**Project:** 21K0777

**BatchID:** R136912

Sample ID: <b>MB-R136912</b>	SampType: <b>MBLK</b>	TestCode: <b>PctMoist_S(2</b> Units: %	Prep Date:	RunNo: <b>136912</b>							
Client ID: <b>PBS</b>	Batch ID: <b>R136912</b>	TestNo: <b>A2540B</b>	Analysis Date: <b>11/26/2021</b>	SeqNo: <b>3617257</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	ND	0.100									

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range	H Holding times for preparation or analy
	J Analyte detected below quantitation limits	M Manual Integration used to determine area response	MC Value is below Minimum Compound
	ND Not Detected	OG1	P Second column confirmation exceeds
	PL Permit Limit	R RPD outside accepted recovery limits	RL Reporting Detection Limit

Original

These commonly used Qualifiers and Acronyms may or may not be present in this report.

### Qualifiers

<b>U</b>	The compound was analyzed for but was not detected.
<b>J</b>	The reported value is greater than the Method Detection Limit but less than the Reporting Limit.
<b>H</b>	The hold time for sample preparation and/or analysis was exceeded.
<b>D</b>	The result is reported from a dilution.
<b>E</b>	The result exceeded the linear range of the calibration or is estimated due to interference.
<b>MC</b>	The result is below the Minimum Compound Limit.
<b>*</b>	The result exceeds the Regulatory Limit or Maximum Contamination Limit.
<b>m</b>	Manual integration was used to determine the area response.
<b>d</b>	Manual integration in which peak was deleted
<b>N</b>	The result is presumptive based on a Mass Spectral library search assuming a 1:1 response.
<b>P</b>	The second column confirmation exceeded 25% difference.
<b>C</b>	The result has been confirmed by GC/MS.
<b>X</b>	The result was not confirmed when GC/MS Analysis was performed.
<b>B/MB+</b>	The analyte was detected in the associated blank.
<b>G</b>	The ICB or CCB contained reportable amounts of analyte.
<b>QC-/+</b>	The CCV recovery failed low (-) or high (+).
<b>R/QDR</b>	The RPD was outside of accepted recovery limits.
<b>QL-/+</b>	The LCS or LCSD recovery failed low (-) or high (+).
<b>QLR</b>	The LCS/LCSD RPD was outside of accepted recovery limits.
<b>QM-/+</b>	The MS or MSD recovery failed low (-) or high (+).
<b>QMR</b>	The MS/MSD RPD was outside of accepted recovery limits.
<b>QV-/+</b>	The ICV recovery failed low (-) or high (+).
<b>S</b>	The spike result was outside of accepted recovery limits.
<b>Z</b>	Deviation; A deviation from the method was performed; Please refer to the Case Narrative for additional information

### Acronyms

<b>ND</b>	Not Detected	<b>RL</b>	Reporting Limit
<b>QC</b>	Quality Control	<b>MDL</b>	Method Detection Limit
<b>MB</b>	Method Blank	<b>LOD</b>	Level of Detection
<b>LCS</b>	Laboratory Control Sample	<b>LOQ</b>	Level of Quantitation
<b>LCSD</b>	Laboratory Control Sample Duplicate	<b>PQL</b>	Practical Quantitation Limit
<b>QCS</b>	Quality Control Sample	<b>CRQL</b>	Contract Required Quantitation Limit
<b>DUP</b>	Duplicate	<b>PL</b>	Permit Limit
<b>MS</b>	Matrix Spike	<b>RegLvl</b>	Regulatory Limit
<b>MSD</b>	Matrix Spike Duplicate	<b>MCL</b>	Maximum Contamination Limit
<b>RPD</b>	Relative Percent Different	<b>MinCL</b>	Minimum Compound Limit
<b>ICV</b>	Initial Calibration Verification	<b>RA</b>	Reanalysis
<b>ICB</b>	Initial Calibration Blank	<b>RE</b>	Reextraction
<b>CCV</b>	Continuing Calibration Verification	<b>TIC</b>	Tentatively Identified Compound
<b>CCB</b>	Continuing Calibration Blank	<b>RT</b>	Retention Time
<b>RLC</b>	Reporting Limit Check	<b>CF</b>	Calibration Factor
<b>DF</b>	Dilution Factor	<b>RF</b>	Response Factor

**This list of Qualifiers and Acronyms reflects the most commonly utilized Qualifiers and Acronyms for reporting. Please refer to the Analytical Notes in the Case Narrative for any Qualifiers or Acronyms that do not appear in this list or for additional information regarding the use of these Qualifiers on reported data.**



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**SUBCONTRACT ORDER**

21K0777

2111591

SENDING LABORATORY:

Trace Analytical Laboratories, Inc.  
2241 Black Creek Road  
Muskegon, MI 49444  
Phone: 231.773.5998

RECEIVING LABORATORY:

Summit Environmental Technologies, Inc.  
3310 Win Street  
Cuyahoga Falls, OH 44223  
Phone : (330) 253-8211

Project Manager: Tim Brewer

Note Our New Email address: TraceSubOut@trace-labs.com

**PO # 21K0777**

Matrix: Solid

Sampled: 11/17/21 12:15

TAT: Standard

Sample ID: 11-17-21-Cake and Vactor Spoils-Blend 21K0777-01

Sampled By: BJ

*Analysis Needed:*

TENORM (Radium 226/228, Pb210)

VPS cooler,  
no ice

14.8 + 0.9 =  
15.7

Released By: Hayley Schultz Date: 11/17/21 Received By: C. Jeay Date: 11/24/21 9:55

Released By \_\_\_\_\_ Date \_\_\_\_\_ Received By \_\_\_\_\_ Date \_\_\_\_\_



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# Sample Log-In Check List

Client Name: **TRA-MI-49444** Work Order Number: **21111591** RcptNo: **1**

Logged by:	<b>Christina N. Jager</b>	<b>11/24/2021 9:55:00 AM</b>	<i>C. Jager</i>
Completed By:	<b>Christina N. Jager</b>	<b>11/24/2021 12:47:56 PM</b>	<i>C. Jager</i>
Reviewed By:	<b>Holly Florea</b>	<b>11/26/2021 8:47:00 AM</b>	<i>Holly Florea</i>

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? UPS

### Log In

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
Not required  
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

### Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
Box	15.7	Good	Not Present			

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CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Trace ID No. 21K0797

Report Results To:

Company Name: City of Kalamazoo

Report To: Shannan Dealer

Mailing Address: 1415 N. Harrison

City, State, Zip Code: Kalamazoo, MI, 49004

Office Phone: 269-337-8667

Email Address: dealers@kalamazoocty.org

Bill To:

PO #:

Contact Name:

Billing Address (if different):

City, State, Zip Code:

Phone Number:

Billing Email Address:

Trace Use:

Logged By: SKL

Checked By: DH

Soil Volatiles Preserved (circle if applicable):  
 MeOH     Low Level     Lab

Sampling Time:

Turnaround Requirements:

- Standard, 5-10 Days  
 3 Day\*  
 1 Day\*

\*Results provided end of business day, requires prior approval.

Matrix Key:

- S = Soil / Solid        W = Wipes  
 W = Water              LW = Liquid Waste  
 SL = Sludge             A = Air  
 OI = Oil                 D = Drinking Water

Project Name: TCLP-Annual Sample

Sampled By: Brandon Jung

Trace No.	Date Collected	Time Collected	Client Sample ID	Metals Field Filled (Y / N)	Matrix	Number of Containers	Cool	Preservation						Remarks				
								HCl	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NaOH	Other						
	11-17-21	12:15 PM	11-17-21-Cake and Vector Spoils-Blend	N	S	1	X											
																		Method 901.M
																		Possible Health Hazards?

Please Sign

Released By: [Signature]

Received By: [Signature]

Date: 11-17-21

Time: 13:45

Released By: [Signature]

Received By: [Signature]

Date: 11-17-21

Time: 16:09

Check this box if you would not like your samples analyzed if received outside of the conditions outlined in the Trace Sample Acceptance Policy at [www.trace-labs.com/downloads](http://www.trace-labs.com/downloads).

**21K0777**  
 Kalamazoo, City of  
 Project Manager: Tim Brewer

**Sample Log In Checklist**

Date: 11-17-21	Original Observation	Corrected Temperature	IR-9 (CF: +0.1°C)	IR-10 (CF: +0.1°C)	20B12743 (CF: -0.4°C)	Temp Blank	Client Sample
Time: 16:09							
Logged by: DH							
Package Description: Cooler							
Package Temp °C	0.5	0.6	✓				
Representative Sample Temp °C	3.7	3.8	✓				✓

**Sample Receipt**

Yes No

- Received on ice or other coolant  
  Ice still present upon receipt  
  Custody seals present  Yes  No Custody seals intact (if applicable)  
 Trace Courier  Client Drop-off  UPS  Fed Ex  US Mail  Other

**Sample Condition**

Yes No N/A

- All sample containers arrived unbroken and labeled  
   Sufficient sample to run requested analyses  
   Correct chemical preservative added to samples  
   Samples preserved at Trace \_\_\_\_\_  
   Chemical preservation verified, check EMD pH test strip used (if applicable)  
   pH 0-2.5 (Lot: HC029115)  pH 11.0-13.0 (Lot: HC022540)  Other  
   Air bubbles absent from VOAs \_\_\_\_\_

**Chain of Custody (COC)**

Yes No

- All bottle labels agree with COC  
  COC filled out properly  
  COC signed by client

**Notes:**

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## **APPENDIX C**

**KWRP PLANT HAULING SOP**  
**Bid Ref. #: 96871-016.0**

  <b>City of Kalamazoo</b> <b>Public Services Department</b> <b>Harrison Street Facility</b>	<b>SOP Number:</b> <b>PSD – WWD – WWO – BS – SOP 001</b>	
	<b>Computer Path:</b>	
<b>Title: Spill Response Procedure For Solids Haulers</b>	<b>Written By:</b> Bob Cochran	<b>Date:</b> 3-7-06
	<b>Reviewed By:</b>	<b>Date:</b>
	<b>Approved By:</b>	<b>Date:</b>

<b>SOP Revision History</b>		
<b>Revision</b>	<b>Date</b>	<b>Approval</b>
01	4-1-07	Robert Cochran
02	11-30-07	Robert Cochran

**I. PURPOSE AND SCOPE:**

When a solids hauler has a spill of any kind, on the Kalamazoo Water Reclamation Plant site or in route to a landfill or land application site, the following procedures will be implemented to mitigate the spill and any potential environmental impacts. If solids or biosolids were spilled onto a pavement surface, it could create a traffic hazard and if not properly cleaned up, the residuals from the spill may be washed into storm drains or waterways causing an impact on the environment.

**II. PRECAUTIONS:**

Raw solids can be hazardous and toxic if improperly processed and handled. Proper procedures must be followed at all times in order to reduce possible hazards and environmental impacts.

Biosolids are generated by treating primary and/or secondary sludge to reduce pathogens. Nonetheless, there is the potential for exposure to pathogenic microorganisms in the final product. Major routes of infection are ingestion, inhalation, and direct contact. Good common sense, personal hygiene, and work habits provide adequate protection for workers handling biosolids. Recommendations include:

- Always wash hands after contact with biosolids.
- Avoid touching face, mouth, eyes, nose, or genitalia before washing hands.
- Eat in designated areas away from biosolids handling activities.
- Do not smoke or chew tobacco or gum while working in direct contact with biosolids.
- Use gloves when possible.
- Keep wounds covered with clean, dry bandages.
- Change into clean work clothing on a daily basis.
- If contact occurs, wash contact areas thoroughly with soap and water. Use antiseptic solutions on wounds and bandage with a clean, dry dressing. For contact with eyes, flush thoroughly but gently with water.

Solids are not combustible under normal circumstances. Certain gases may be associated with solids that have been stored for extended periods of time. These gases include hydrogen sulfide and methane. Normally, these gases will not present a problem with the Kalamazoo Water Reclamation Plant's solids because of our limited on-site storage space. When producing "Class A Biosolids", lime is added to increase the pH of the cake. This causes ammonia gas to be released from the biosolids when the cake is moved. The use of proper gas detection equipment is required when the potential for exposure to harmful levels of any gas exists.

### **III. DEFINITIONS:**

- A. Class A Biosolids: biosolids that have been treated with heat and lime to destroy pathogenic organisms and reduce vector attraction. This type of biosolids is suitable for agricultural land application at normal agronomic rates.
  
- B. Raw solids: solids that have not been treated to reduce pathogenic organism levels and are not suitable for land application.

### **IV. RESPONSIBILITIES:**

- A. The hauler (driver) is required to immediately report all spills to the Kalamazoo Water Reclamation Plant (KWRP) and the hauler's spill response representative upon discovery of a spill. He is required to follow the KWRP's spill response procedure, as well as any hauling company procedures that are deemed necessary to mitigate the spill. The hauler is responsible for all mitigation costs.
  
- B. The KWRP is required to send a representative to the spill site to document the incident and verify that proper clean up procedures have been implemented to mitigate the spill. The KWRP will notify the MDEQ, County Health Dept. and prepare a media release when necessary.

### **V. PROCEDURE:**

- A. Kalamazoo Water Reclamation Plant (KWRP) on-site spill:
  - 1. Park your vehicle on the side of the road and remain at the spill site or with your vehicle unless it is necessary to leave in order to contact on-site response personnel. Contact the Treatment Control Analyst (TCA) (269-337-8681) to report any spills.
  
  - 2. Assist on site personnel with cleaning up the spill, if it's a small one (shovels and brooms) before leaving the plant site. If the spill is large and will require extra equipment (front end loader and another truck), then contact your company and set up proper clean up procedures for the spill site.
  
- B. Off-site spill:
  - 1. Drivers must notify their company spill response representatives and the KWRP TCA (269-337-8681). If the spill has occurred on a public right of way then the driver must contact the local law enforcement agency to assist in traffic control.



2. The spilled solids are to be loaded back into the original vehicle if possible. If the vehicle is disabled, the spill shall be loaded into an alternate vehicle for transport to an appropriate disposal site or back to the KWRP. Spilled solids must be prevented from migrating off the incident site, into storm drains or surface waters. This is especially important if an incident occurs during a rain event.

3. After the spill has been loaded, the incident site must be cleaned. Spills may be cleaned by sweeping the site free of remaining debris. Do not wash off tools or equipment at the spill site. When possible a street sweeper should be used to clean the road surface and that material collected must be disposed of properly. Proper disposal should be at the original destination or a landfill permitted to receive solids. The cleaned up material may also be accepted at the KWRP site.

4. Any information or reports about the spill will be shared by the City of Kalamazoo and the hauler.

## **VI. REFERENCES:**

## **VII. LEGAL AND / OR REGULATORY REQUIREMENTS:**

Any legal and/or regulatory reporting requirements will be the joint responsibility of the City of Kalamazoo and the hauler.

## **VIII. ATTACHMENTS:**

Route maps and directions to landfills and agricultural land application sites will be supplied.

Contact numbers for all interested parties will be supplied.

A biosolids fact sheet will be supplied. (For landfill solids or Class A Biosolids).